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Special Libraries, January 1969

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special libraries

January 1969, vol. 60, no. 1

Large Data Banks

The Census Bureau

Information Systems & Networks

Nursing School Classifications

Ghanaian Special Libraries

Library Technicians

SPLBA 60 (1) 1-66 (1969)

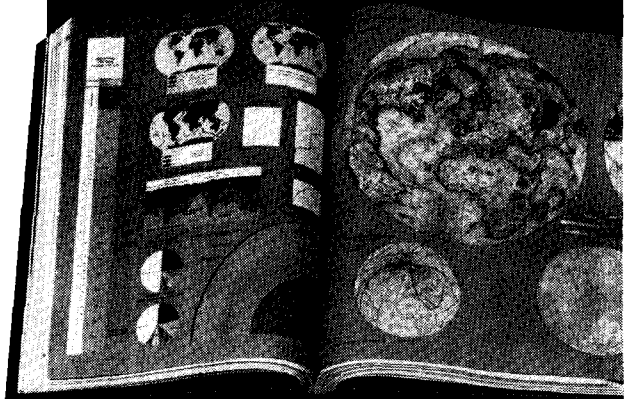
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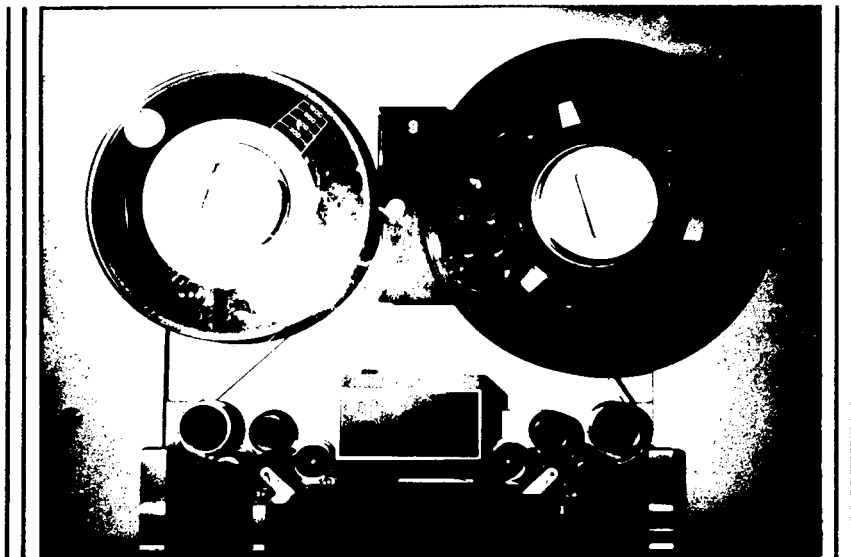
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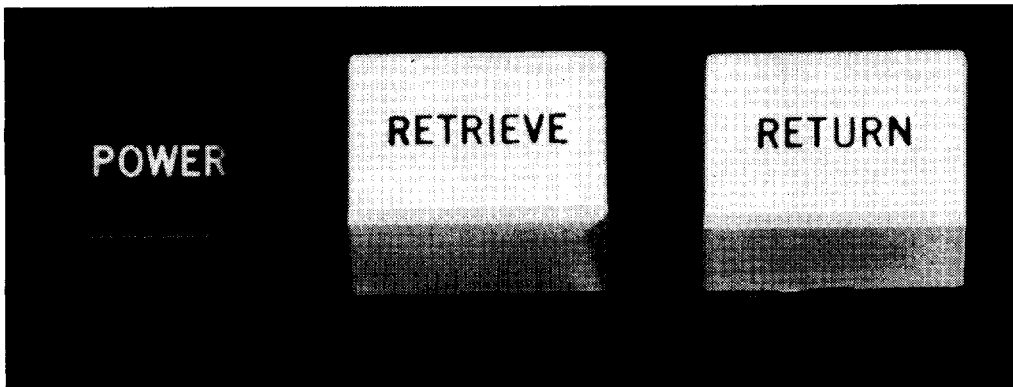
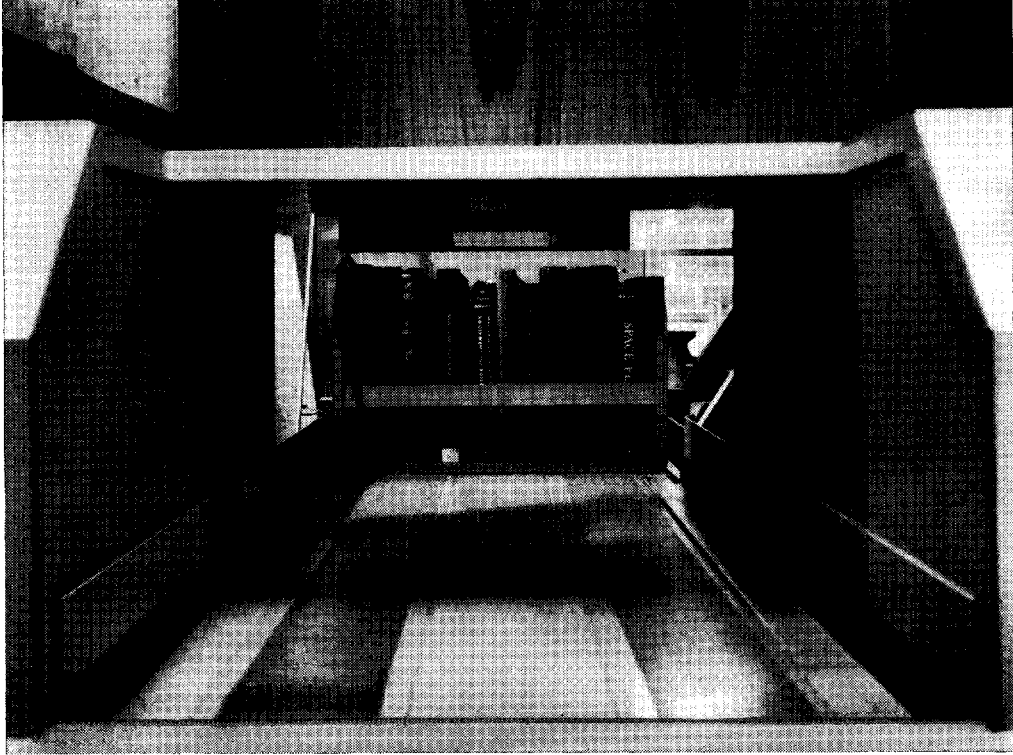
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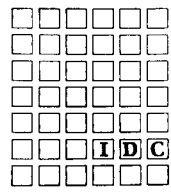
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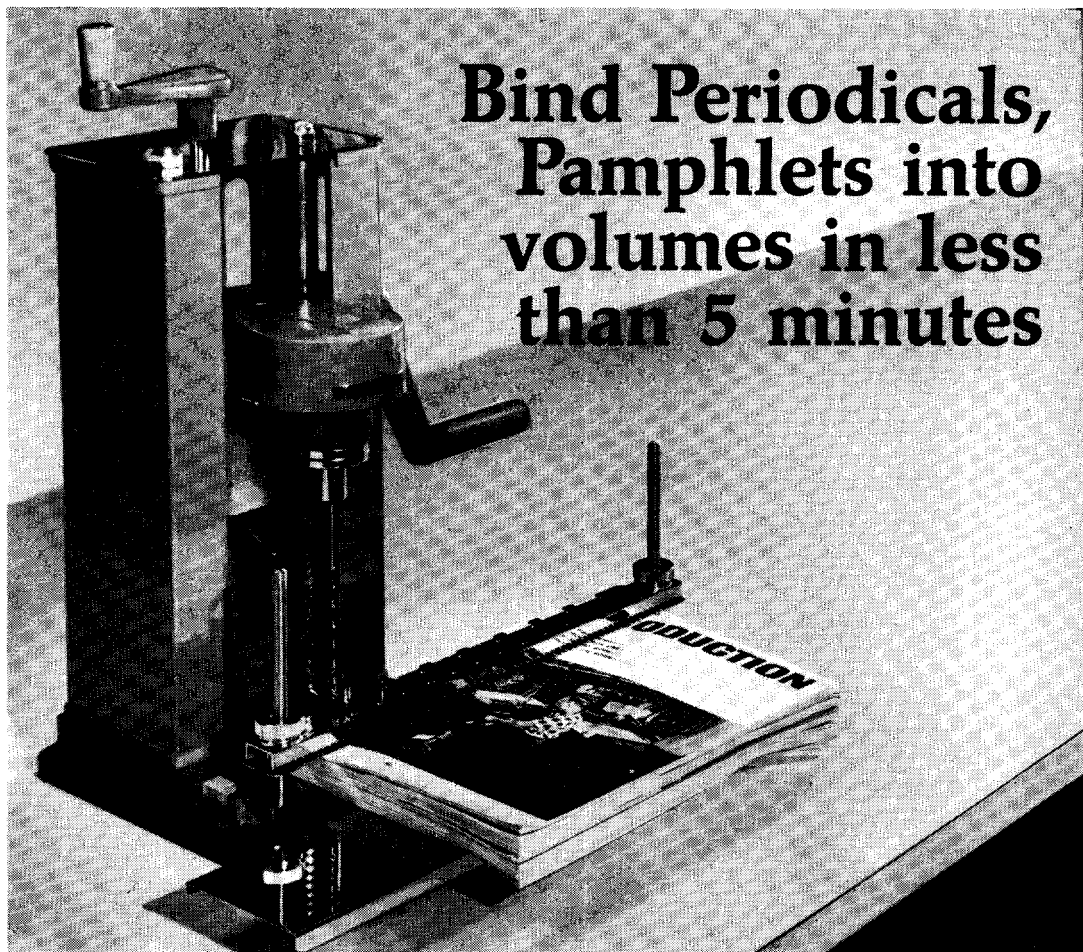
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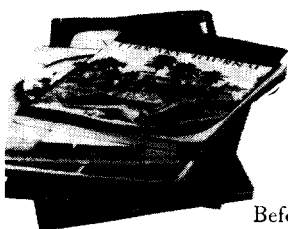
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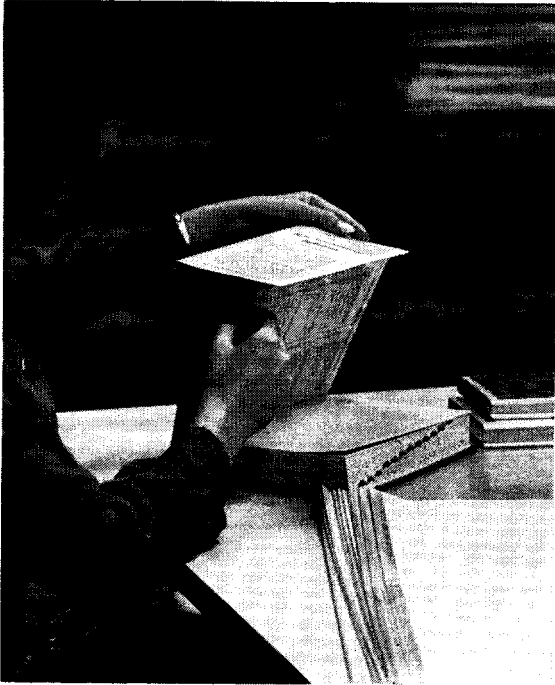
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Volume Sixty

Editorial Comment

DURING 1968 there have been many changes in the incumbents of the editorial chairs of major publications in our world of libraries, information and knowledge. Many of the new editors have stated their intentions and philosophies. For *Special Libraries* there is need for more than a declaration of intent. Can *Special Libraries* respond adequately to the seemingly divergent demands of its readers?

Vigorous editorials appeared in *Special Libraries* during its early years. Editorial comment focussed on the positions of *Special Libraries* and of the Association in their relation to the world of librarianship at large as well as to the world of business, government and technology. Such comment was later replaced by reports on current activities of the Association's President, but this page also disappeared in the mid-1950's.

With the appearance of a new volume number on our masthead, it is appropriate to begin an examination of the purposes of SLA's "official journal." More directly than indirectly this examination must also relate itself to the purposes of the Association itself—purposes that are germane to our sixtieth year.

In recent past years, dissatisfactions have been expressed by readers that *Special Libraries* is not "professional enough." Reports on simple labor-saving techniques are criticized as being old fashioned, but a trend toward mathematically oriented papers is feared. Some critics feel that too many papers are rejected each year, while others think that too many come from the Annual Conferences. (No critic seems to have noticed that some of the more stimulating Conference papers were published elsewhere. Nor has there been criticism of the sequestering of Conference papers by some Division publications.) The gauntlet continues with: too many/few bibliographies; too much/little news; too much Association business affairs; too little. . . .

Can *Special Libraries* answer these critics? Emphatically, yes, it can—even though one publication cannot be all things to all men.

In my opinion these are not separate criticisms; the "too little/too much" aspects are attributes of the totality that is SLA. Acceptable balances can be established by a willingness to seek answers, and by the reader's willingness to recognize that each "special" is not uniquely "special." "Too little" and "too much" also mirror the ferments in our world of knowledge where some members are more fleet of foot and mind than others. Editorial elasticity should be able to accommodate the achievements of the front runners and should also generate professional inquisitiveness in those whose continuing education evolves more slowly.

Diverse "subject" interests from ancient history to aerospace all have common denominators. Crevices can be filled that still separate the best of traditional librarianship from the best of the newer information techniques. The experiences of a generation gap can be shared by the new graduate and the experienced veteran. A tyro sophisticated in the new jargon but inexperienced in special library service can be constructively related to the experienced veteran with his acute professional intuition (but who may still feel uncomfortably naive in the company of computer-niks). Interaction of all these backgrounds can invigorate us all.

A real criticism, although not loudly voiced, is that *Special Libraries* is too introverted—that it does not take note of activities outside our own borders, fuzzy though these borders may be. "Controversy is not shunned." In spite of this sentence in our statement of purpose, there has been little evidence of discussion of controversial topics in these pages. Are our readers so disinterested? Or do they think that their publication is not interested?

An editor's concerns can be with style and grammar, and with paper and ink; visual and tactile images are important. Above all else, however, the intellectual content must have impact. The editor should induce authors—or even seduce them intellectually, if necessary—into enhancing the image and reputation of *their* publication.

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Large Scale Data Banks

Will People Be Treated as Machines?

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■ Given the existence of large scale data banks that store information about people (their health, education, financial status, etc.), a *natural* next step in the direction of full automation will be the automatic selection of people. That is, for example, the use of machines to decide who shall be permitted to attend certain schools, or obtain an educational loan, or be given a travel visa, or be allowed a security clearance, or have his driver's license revoked, etc. The selection process will be automated by having a machine search through its file of personnel data and select—or reject—those persons whose records match on certain criteria. This paper describes the logic of automatic selection, and how this process constitutes one of the most serious threats to our society—the tendency to treat people as machines.

THE changing pace of life in today's society is so swift that often it shocks us. This psychological inability to understand and adjust to our rapidly changing technological society has been dubbed "futures shock". Change is not only shocking; it is odd. As one wag put it: progress is moving ahead so swiftly that it is leaving us behind. But what *is* progress, if *we* are being left behind? What indeed! And the finger of guilt

points, with some confusion, to our exploding technology, because we find frequently that the introduction in our society of new and complex technology has caused remote consequences and side effects that we did not foresee and that we do not want. We find that some of the remote consequences of new technology imply a real degradation of the human quality in our lives. Such progress is, of course, no progress at all.

LESSONS FROM THE PAST. There are some painful lessons that we can learn by looking to the past at the impact of technology on our society. These lessons now are obvious, yet so very important. A key example, of course, is the automobile which has changed the face of society and our lives in it. It has brought great benefits, but also great human costs. These costs take the form of huge swaths of concrete freeway that knife through our cities and across the countryside. The costs are paid in terms of noise, congestion, ugliness of landscape, 50,000 traffic deaths per year, and the growing danger of air pollution. Another example is provided by the introduction of new and powerful insecticides that have brought great benefits but also devastating consequences. We spray the crops and after a few seasons whole species of butterflies, fish, birds, and small animals are practically wiped out. And, if a final example need be cited, one might point to some new drugs designed to help us relax, but which have caused over 5,000 children to be born without arms or legs.

FUTURES ANALYSIS. Hindsight is always 20/20, but if we are properly receptive, it can teach us about the future. We are learning that as our technological society becomes more complex, a new type of activity, sometimes called "futures analysis", is urgently needed. Futures analysis is the systematic evaluation of technological and social innovation so as to detect remote and undesired consequences. The purpose of futures analysis is *not* to make predictions about an immutable and predetermined future, but rather to analyze and examine possible consequences of technological and social change. The future is mostly open—in fact, we constantly face a host of *possible* futures. The task of futures analysis is to examine possible futures and point out some of the undesirable consequences implied by some. But to analyze and detect undesired consequences is only part of the problem. Equally important is to know what kind of corrective action must be initiated to prevent certain consequences. Surely we can see the effects of a fleet of supersonic aircraft that can transport us from Los Angeles to New York at a saving of two hours, but which in the process creates skull-shattering noises across the land. Can we take corrective action soon enough?

THE IMPACT OF INFORMATION TECHNOLOGY. As library scientists, our special concern lies not with the impact of new modes of transportation, but with the implications of new information technology for library data processing. We should be asking ourselves what new trends seem to be emerging, how will automated library systems of the future affect the quality of our lives, and what potentially harmful consequences must we be on guard to avoid.

Specifically, what about automated library systems and networks? Clearly there is a trend toward computerized library systems connected via high speed, high capacity communication channels. It is not my purpose to offer, deny, or modify such predictions. In fact, my purpose is not a discussion of automated library networks, but rather about the implications of future mechanized data banks

which will store and retrieve information about people—not about books. I see real dangers in the use of such systems. What are they?

National Information Networks and Centralized Data Banks

A DETECTABLE TREND. There is a growing trend—on the part of an increasing number of diverse organizations in all parts of society—to collect, organize, and store large amounts of information about people; that is, to create banks of data about people. The notion of such data banks is not new; it has been going on for years. One need only look at the role of the Bureau of the Census. This information collection trend has been gaining momentum rapidly, and data banks have been emerging in all levels of government (military and non-military, federal, state, and local) and in all types of private industry (from banking and insurance to employment agencies). Part of the motivation for the existence of such data banks merely is the growing size and complexity of our society and the need for information for purposes of planning and control.

Closely coupled with data collection and storage is the trend toward mechanization; that is, to put data in machine form so that the data can be stored for rapid interrogation, search, and retrieval. The information technology is available—and becoming larger, faster, and cheaper each month. Just ahead still another technological trend is discernible: the coupling of currently separate data banks. This, so the argument goes, would make for a greater overall *efficiency* by allowing data to be shared, avoiding duplication, and permitting a wider class of data to be more generally available. Before spelling out the implications of such networks of computerized data banks, let us consider some of the types of data about people that are currently being collected. Even a partial list is startling. A partial list of data about people now being systematically collected and stored is in Table 1.

Table I. People Data: A Reminder

Birth	Date of birth, place, name of parents (legitimate or not), blood type, etc.
Education	Schools attended (from elementary to college), courses taken, grades received, special problems.
Health	Immunization for childhood diseases, hospitalizations, operations, miscellaneous medical data.
Crime	Data involving law enforcement agencies ranging from traffic citations to misdemeanors and felonies, use of drugs, homosexual offenses, etc.
Finances	Loans on cars, television sets, house, furniture, stock transactions, land purchases, etc.
Miscellaneous	Marriage, divorce, number of children, job history, types of special work experience, size and condition of home, number of rooms, etc. Personal references.
Insurance	Data on all types of insurance from health and accident, to automobile, to life insurance.
Taxes	Complete tax data: federal and state.
Military	Complete history of military experience.
Travel	Foreign travel: what countries, when, for how long, amount of U.S. currency spent, what items brought back through customs, etc.

STOCK TAKING. The point of this enumeration is to make explicit something that we have dimly been aware of; namely, that we seem to have an insatiable appetite for information—especially information about ourselves. We are collecting massive amounts of data about the characteristics and activities of people. Some of the data collection is deliberate and purposeful. For example, in the case of the census, detailed questionnaires are sent out to all citizens. In the case of private credit bureau corporations, there is a systematic data collection operation going on constantly. But there are other situations where the data collection is peripheral; that is, it is collected as a byproduct of some other activity. We know that it is possible, by means of computers, to collect large amounts of data at high speed. Thus, as we move closer toward the so-called "cashless" society, a very large amount of information on all facets of our lives will be automatically collected. This will mean that information on all aspects of a person, from his age and genetic material to the amount of his latest

electric bill, will be available for search, processing, and retrieval. Of course, some aspects of such a data network already exist; that is, the current data network on credit information. This data network on credit now presumably includes credit information on over 100,000,000 of our citizens. Complete coverage is expected in a few years.

What are some of the possible implications?

A Closer Look

For whom are these data banks intended and how will they be used? What are some of the properties of the input information? And, what kinds of processing will be performed on these data by the users? There is not much to say about the users of these data banks other than that these systems will be used by *many* different agencies, government and nongovernmental alike. The data will be used by politicians and planners, by behavioral scientists and by clerks. A key question, of course, is not *who* uses, but

what constitutes legitimate use and what constitutes a misuse. We immediately think of malicious inquiry, blackmail, etc. as misuse, but what other improper uses might there be? Only a deep consideration of the consequences of certain types of uses will reveal which types are, in fact, improper. It is a type of futures analysis that is keenly needed. The answers are far from obvious.

THE INPUT DATA. Turning now to the input data for these data banks, a distinction must be made between two different kinds of information: direct and indirect data. By direct data is meant information about a person that can be determined by direct observation; for example, height, weight, age or address. By indirect data is meant information about a person that requires inference or interpretation; for example, statements about his honesty, reliability or loyalty. This information, in a sense, provides an *index* describing what kind of a person the individual in question is. But in the case of such indirect data, who is responsible for inference—whose interpretation is it that goes into the data? How can we validate indirect data? That is, what kinds of safeguards and protective rules might be needed to guarantee that improper types of indirect data are not used in the file. What must the systems planners beware of?

PROPERTIES OF THE INPUT DATA. One must be careful not only of indirect data, but of direct data as well. Consider, for example, some of the following properties of direct information that describes people.

- ★ *Incomplete* Some relevant item of data is omitted from a person's file.
- ★ *Inaccurate* There is an error in some aspects of a person's file; for example, a statement thought to be true is, in fact, false.
- ★ *Irrelevant* Some irrelevant information is included.
- ★ *Vague* Some item of data is vague; for example, its meaning is in question.
- ★ *Ambiguous* Some item of data is subject to two or more different interpretations.

Our purpose here is again to raise some questions and to ask when is a person's record considered complete, accurate, relevant, unambiguous, etc. And what are systems consequences when his data file is lacking in some aspect as indicated above. How serious might some consequences be?

Kinds of Errors

Given data about people in machine form, what kinds of processing can be done? The first step, of course, is simple interrogation and look-up from computer terminals that may be quite remote from the central processor. A typical interrogation might request that the complete file on John K. Jones be retrieved and that the following data be printed out: present address, name of wife, or list of professional organizations of which he is a member. This type of look-up is exactly analogous to the search of a library card catalog in order to find, for a given book, the name of its publisher, or its year of publication, or the number of its pages, etc. I will not stop here to look any further at this type of use of such a file on people. But some of you might anticipate what could happen if one reaches an incorrect file; i.e., if one retrieves information on the wrong John K. Jones.

AUTOMATIC SELECTION. Professor Abraham Kaplan has defined what he calls "the fallacy of the hammer." He reminds us that when a young boy is given his first hammer, he goes around the house and finds that almost everything needs to be hammered. Give a boy a hammer and everything will need hammering; give a bureaucrat or a social scientist a computer well stocked with data about people and everything about those people will need to be computed. This is the fallacy of the hammer that Kaplan extends to the computer.

Thus we can see that with a computer file on people, a "natural" kind of processing will be automatic selection. Automatic selection of people is the analog of automatic literature searching in a mechanized library system which is, as you know, a machine search for all and only those documents that

The beginning of a New Year is traditionally a time for introspection and self analysis. Dr. Maron's concerns with trends in modern information technology emphasize the need for priorities: that our human aspirations be given precedence over the potential efficiencies to be introduced by our technology of the mid-twentieth century.

satisfy some specified retrieval criteria. Automatic selection (or rejection) of people might work as follows: one would program the computer to search the file and print-out the names of all, and only, those individuals who satisfy certain specified criteria. The criteria specified by the searcher would depend, of course, on his purpose—and there can be many many different purposes. Here is a first list that immediately comes to mind:

- Job selection: Find all people in the file who are eligible to do a certain kind of a job. Retrieval criteria might specify data on age, health, education, etc.
- Education loan
- Security clearance
- Travel visa
- Admission to a university
- Increase or decrease in insurance premiums
- Eligible for various government benefits
- Eligible for heart or kidney transplant

Every agency that has legitimate access to this master file will want to use the data to make automatic selections of one sort or another. Such a procedure is not new; it goes on now. This kind of data processing will continue and will expand as more and more data banks are mechanized and tied together to form networks.

Without a detailed discussion, some of the possibilities can be seen. Selection rules are formulated for a wide variety of purposes. Files are searched for all and only those individuals that either satisfy or fail to satisfy certain criteria; and people are either selected or rejected.

KINDS OF ERRORS. We have already mentioned how data might be incomplete or

inaccurate and what some consequences might be. However, in the case of automatic selection of people, there is still another and different source of error—not due to the incompleteness or inaccuracy of input data, but due to errors in the search *rules*. The reference, here, is to human errors in *judgment* in deciding what the selection (and rejection) criteria should be and for what purposes.

Who decides, and by what set of standards does one decide, about the selection criteria? Who can be held accountable? Do not forget that once a selection routine has been programmed and running, there may be a tendency to accept it simply because it is running automatically. Remember that the selection routine represents, among other things, the judgment of someone who decides to use it, and that person is responsible for the consequences—one way or another.

Hidden and Implied Assumptions

Can you imagine what it would be like to live in a society where machines play a larger and larger role; where machines are used not only to process large amounts of data at high speed, but to acquire the data as a normal byproduct of many day-to-day activities such as buying a hat, having a blood test, using electricity, joining an organization, subscribing to a magazine, dining out, calling long distance, etc. What are the implications of this degree of information acquisition and use? A few of the more obvious unpleasant possibilities have been suggested, for example, invasion of privacy, and all kinds of errors. But do you not sense that there is something else that has not yet been exposed and which gives rise to a deep sense

of uneasiness? I sense this possibility and will argue that by undisciplined information collection and processing we may be creating a social atmosphere where people are treated as machines. Let me explain what I mean.

PEOPLE AS INDIVIDUALS. First of all, the basic notion of automatic selection; that is, of being able to write a computer program (no matter how carefully it is conceived) to select people by some general set of specifications, suggests that people will *not* be considered as individuals. That is, each human being is different from every other person in many important ways. These individual differences in family background, education, experience, temperament, etc., are not merely important to us, but they make important differences in how we will fit in any situation, or how we will perform any activity. Therefore, the notion of selecting people for some nontrivial purpose according to any general rule, masks the notion of *relevant* individual differences. It implies that most individual differences are irrelevant. Thus it contradicts the basic notion that each person is an individual.

PEOPLE VS. OBJECTS. There is yet another implication of this notion of computer selection which is destructive to the notion of being treated as an individual person. Computer selection of people according to a set of specifications implies that people are objects. What is the distinction between a person and an object? This is, of course, a deep and difficult question, and I have no short answer; but—to me—one important im-

mediate distinction comes to mind. We measure and manipulate physical objects; sometimes we measure and manipulate people. But when we deal with humans *as* people, we stop measuring and we consult with them. We enter into dialog! This is the crucial difference. In the process of automatic selection, the computer has stored all kinds of measurements about a person and his activities. The machine is programmed to search according to a general rule, which says—in effect—find all people whose measurements satisfy the following specifications. Automatic selection implies that we are objects—our characteristics are measured and computed—but *we* are not consulted. As people we do not want to be merely measured; we want to be consulted and for good reasons.

DIALOG. For a person to be consulted about something—for him to enter into dialog with someone else—implies, among other things, that he be given the opportunity to change the other person's mind. This notion of allowing for the possibility of changing the other person's mind is, of course, a key element in true dialog. Without it there is no dialog. Now, given a network of highly automated data banks, how will it be possible for any person not merely to communicate with it, but to "change its mind". That is, how does one say to a system, "You were in error about my measurements and therefore, I was mistakenly rejected for so-and-so;" or, "You neglected to include in my file the fact that such-and-such, and this happens to be very relevant to the question of my being selected for so-and-so."



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If the system is designed so that a person does not have the *opportunity* to change its "mind" about him, then he is being treated as a machine. He is being measured and his measurements are being computed, but he is not being listened to with the possibility of changing the system's "mind."

But there is an even more important element of dialog beyond the notion of changing the system's "mind" about some matter of fact (whether it be about some aspect of the world or about someone's measurements). This other element concerns goals, purposes and values. To enter into dialog with another person implies more than updating his state of knowledge; it implies the *possibility* of changing his goals. Will it be possible, in any practical way, for the man-in-the-street to exercise some modest degree of influence toward changing the "goals" of the system, for example, toward getting it to use different search criteria, or toward getting to select people for some other purpose than a given one. If this possibility is not real, then people are subservient to the system—they are being treated as machines.

Conclusions

My concern is with modern information technology, and more specifically, the kinds and uses of information technology that are now being projected for library systems of the future. But instead of considering auto-

mated library systems where one can remotely interrogate a computer for information about a *book*, or search a mechanized file to select all *documents* on a given subject, I am concerned with information systems that store data about *people*. I sense a possibility which disturbs me: the large scale use of machines for the automatic selection and rejection of people. I am suggesting that by a lack of foresight, we may rush into a future when we have highly *efficient* information networks, but where we begin to treat ourselves and others in mechanical ways. We might create a system where we begin to measure and manipulate people—to treat them as objects, instead of providing a system where people can be listened to.

The problem, of course, is not with the computer or any other item from our wondrous stock of information technology. It lies, rather, with our systems planners who, in the final analysis, do not really understand the meaning of measures of cost effectiveness. They fail to understand that for us, as people, it is more important to live in a society that is human, than in one that is efficient. Or, to state it differently, the most efficient system for *people* is that which enhances their humanness.

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The Census Bureau as an Information System

Developments in Increasing Access to Census Data

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■ The Bureau of the Census is considered as a national information system. The Bureau's plans are outlined by which the Bureau expects to increase the utility and accessibility of its data products and services from the 1970 Censuses of Population and Housing. The 1970 census data delivery system will include not only extensive published reports, but also data summaries on computer tape and microfilm, special tabulations, etc. User education tools and references are also being prepared to inform users and to help them make efficient use of the census data products and services.

THE Bureau of the Census is not particularly fond of the term, "data bank," which carries the implication that users can "withdraw" information from the "bank" without adequate safeguards on confidential data. This, in turn, has led to considerable notoriety for the whole data bank idea and suggestions in the Congress and the press that data banks mean "Big Brother" is watching over you.

There may be something to such notions in the case of data centers that contain dossiers on particular individuals. But the Census Bureau is a storehouse of statistical or

summary data files, not dossier files. Names of individual reporting units are not carried on the computer tapes used to produce statistical summaries; and no information is released which identifies an individual. Within these strict limitations of confidentiality, the bureau can make available a vast amount of information about the population, economy, and governments of the United States. Institutions, organizations, and individuals with research and policy-making commitments in all sectors and fields—public and private, government, business, or academic—can look to the Census Bureau as a prime source of needed statistical information.

You Should Know

Knowledge of what products and services are available from the Bureau of the Census and how to obtain access to specific products should be within the purview of every librarian, particularly every special librarian, whose clients seek information contained in the census data base. Clients look to their librarians to serve as a communication link to data sources and, in general, to save them time and trouble in locating needed information.

Librarians who serve municipal governments or organizations of urban planners should be able to communicate to their clients that population characteristics of census tracts (income, family structure, housing quality, unemployment) will be available in greater detail from the 1970 census and in a wider variety of formats—computer summary tapes,

computer produced microfilm or microfiche copy, as well as the familiar printed reports. Librarians should also be aware of the possibility of relating census data and locally generated data to build an urban information system.

Librarians who serve business corporations should be able to point out to their clients the number of ways census data can be used to aid business operations: to identify areas with high proportions of persons likely to provide the best markets, to identify areas with the desired labor force characteristics for the location of plants, etc.

Librarians who serve law firms may want to guide their clients to census data useful in preparing briefs for law suits or show them how to obtain special tabulations for this purpose. For example, a special tabulation of characteristics of Negro school children in Mississippi was used in a recent case regarding a Mississippi law denying free public education to children not living with their parents.

Finally, librarians professionally concerned with the problems of managing information (cataloging, documenting, retrieving) may be interested in learning how the Census Bureau is approaching the problem of organizing and documenting its data base to increase the utility of census data to clients outside the bureau.

The bureau feels that librarians are a vital component in a communication network linking national information sources such as the census data base to the host of users and potential users around the nation. If librarians are acquainted with census products and services in depth, it should be easier for their clients to learn about and to obtain access to census data. This paper touches on the high points of census data access and use in relation to the 1970 Decennial Censuses of Population and Housing.

The Bureau as an Information System

First, a word about the bureau's role as an information source from an historical perspective. The census has been a resource for information since 1790. Only comparatively recently, however, has the bureau devoted substantial attention to the question of how to develop an information *system* which

meets all the needs of the variety of actual users of census data. After the 1960 Decennial Censuses of Population and Housing, growing numbers of users confronted the bureau with demands for more data, for more data available in a wider variety of formats, and generally for a broader range of products and services available from the bureau. The nation's increasing awareness of social ills—the problems of the cities, of the schools, of transportation, of poverty—stimulated much of this demand for information and made it imperative for the bureau to re-define its role in terms of service to clients. The revolution in data processing techniques of the past two decades—the innovation and continual improvement of computer software and hardware capabilities—created the potential for the bureau to become a user-oriented information system.

Several organizations recently established within the bureau are working on the problems of expanding and improving bureau products and services, primarily in connection with population and housing census data. The New Haven Census Use Study is currently exploiting the opportunity provided by the special test census conducted in that city in the spring of 1967 to carry out an intensive study of user needs for data tabulations and to experiment with a variety of techniques and formats for presenting and using census data. The Data Access and Use Laboratory of the bureau is working on applying the knowledge and experience gained from the 1960 census about data requirements of users to the 1970 Censuses of Population and Housing. A number of developments and innovations are projected to improve the information system capabilities of the bureau after the 1970 census.

The 1970 Schedules

It might be in order to review briefly the content of the 1970 census. The form of the schedules has already been determined. This gives the bureau sufficient lead time to work out collection and processing procedures well in advance of Census Day in April 1970. In fact, the bureau is conducting test censuses in three areas of the country in 1968. These are billed as "dress rehearsals" to try out the actual procedures to be followed later.

The schedule comprises 34 population items and 38 housing items. A small number will be asked of everyone in the nation—that is, on a 100% basis. These questions include age, sex, color and race, relationship to head of household, marital status, and a series of questions about the housing unit. The bulk of the items will be asked of a sample of the population only (either a 25%, a 20%, or a 5% sample). Most of the questions to be asked in 1970 are the same ones asked in 1960. A few 1960 items were dropped from the 1970 schedule, and a few items were added.*

The Census Bureau devoted substantial time and attention to planning the content of the census schedules. The bureau invited suggestions from all quarters and held intensive discussions with many individuals, organizations, and federal agencies. The bureau went to the nation in a series of locally sponsored public meetings held in 23 cities. Many new items were proposed for inclusion, but only items considered to be of broad public utility and not too complex or personal were actually put on the schedule. The Social Security number, for instance, was dropped for considerations of personal privacy, despite its usefulness in matching census records with other data to produce new summaries. A question on religion was excluded because of objections based largely on the separation of church and state. In designing the census schedule, in short, the bureau aimed to strike a balance between satisfying the needs of users, particularly the federal government, for data to carry out program and research responsibilities, and the cost to the citizen and to the government of a too detailed and lengthy questionnaire.

In fact, the 1970 census represents less of a burden on the private individual than many previous censuses. There are fewer population items on the 1970 schedule than in 1940 for example. Nor does the 1970 schedule include any items similar to the questions in 1890 on whether the respondent was de-

fective in mind, sight, hearing, or speech; a cripple, a prisoner, convict, homeless child or pauper. Nor does the 1970 census ask whether the respondent was a mulatto, quadroon, or octoroon, another item from 1890.

More Formats

Essentially, bureau innovations in improving services to clients center around making data available in greater detail and in a wider variety of formats rather than adding new subject content. Users have strongly urged the bureau to improve its services by providing data in a number of formats. As in the past, the familiar printed volumes will remain the chief means of presenting census results. The volume of publication will be increased somewhat beyond 1960 levels. Reports for census tracts and city blocks will contain more data than previously, for example. But with recent innovations in data processing technology, it is now possible to make data available on other media such as computer tape.

The demand for data in other than the traditional printed form has increased tremendously over the past decade. Many people purchased Xerox or photocopies of tables printed out from the 1960 census summary tapes, and a fair number went so far as to purchase the summary tapes themselves. The bureau accordingly is beginning to revise its definition of what constitutes "published data" to include data on tape, microfilm, microfiche, photocopies, etc., and to conceive of its product as a data delivery system which can provide tabulations in any of several ways to meet user needs.

Users who have the necessary computer facilities will be able to purchase tapes containing data summaries down to the block level from the 1970 census. There are a number of advantages to these tapes. Summary tapes, which contain no individual identification, are produced from the basic record tapes and are used to produce the printed reports. But the number of printed pages is limited by cost and size considerations. The summary tapes contain much more data. Moreover, the tapes will generally be available in advance of the printed volumes. A First Count Tape containing summaries of all the items asked on a 100% basis down

* The 1970 census schedule content is described in *Data Access Description*, "Items Contained in the 1970 Censuses of Population and Housing," CEP-1 (July 1968), available from the Bureau of the Census, Washington, D. C. 20233.

to the level of groups of blocks will be available by the end of 1970.

There are a number of technical problems associated with using summary tapes such as documentation and compatibility between different kinds of computer languages and hardware. The Data Access and Use Laboratory is now engaged in orientation activities to acquaint potential users of 1970 census summary tapes with possibilities and problems of using the tapes well before the tapes are available. Local groups of tape users may request workshops or seminars on particular problems of tape use. The laboratory is also exploring the possibilities of local groups setting up summary tape processing centers to provide tape copying, programming, and data manipulation services to others in their areas. The laboratory is not neglecting the library community in these efforts. A number of libraries with computer facilities are being approached to ascertain their interest in receiving 1970 census summary tapes.

tapes themselves are available. This microfilm copy can also be readily converted to eye readable copy and made available in this form.

Finally, there are a number of users whose data needs cannot be met by any of the tabulations the bureau will make generally available and who require special services of one kind or another. The bureau will have the capability, as in the past, to provide special tabulations at cost for users who desire particular cross-classifications of items which are not part of the bureau's regular tabulation program. Since retabulation of confidential basic records is involved, bureau personnel will perform these tabulations, and the client will receive only the summarized output.

The bureau will also be able to provide special tabulations for small geographic areas defined by the user such as school districts, shopping areas, or traffic zones. This is an important innovation. There has been substantial demand for increased availability of data summaries for small user defined geo-

Increasing awareness of the nation's social ills—the problems of the urban complex, of educational needs, of transportation and of poverty—has increased the demands for census information. Since 1790 the census has been a resource for information; but only in the last two decades has the bureau had the potential to become a user-oriented information system as a result of new data processing techniques.

Tape to Film

Not everyone is or need be a disciple of the computer. A large body of users may want more data than are contained in the printed volumes but cannot afford or do not want to have these data in machine readable format. These users should be excited about the bureau's experimentation with tape-to-microfilm developments. We will use new machines to read data on tape, organize the data into table format, and produce microfilm output. The bureau hopes to have microfilm copy of data summaries on tape available at reasonable cost at the same time the

graphic areas, particularly from users with information and program responsibilities in the nation's urban centers. The bureau will be able to meet this demand largely as a by-product of the mail-out/mail-back enumeration procedure to be employed in collecting data from the majority of the populace.

Painless Enumeration

To digress briefly about enumeration procedures, the bureau first tried mail-out/mail-back procedures in 1960 with considerable success and plans to extend the use of this method substantially in 1970. Householders

living in large metropolitan areas and some adjacent counties (roughly 60–65% of the total population) will receive questionnaires through the mail to be filled out and mailed back to the local census office. Enumerators will enter the picture only when follow-up is needed to obtain missing or incomplete questionnaires.

To employ the mail-out/mail-back procedure, a list of all addresses in the city delivery areas is required and is now being prepared on computer tape. Each address must be allocated to the pieces of geography (blocks, tracts, minor civil divisions, states, etc.) for which tabulations will be prepared. To do this, a computerized address coding guide has been developed, which describes the address range for each blockface or side of a city block and hence enables an address to be coded to the appropriate blockface and simultaneously to all larger areas of which that blockface is a part. To protect confidentiality, no data will be released for blockfaces, but users by specifying and combining blockface codes can call for data summaries for any area of their choosing.

Special Services

There are a number of other special services which the bureau is contemplating. These include matching studies capability. This involves taking a client's list of individual records—hospital admissions records, for instance—matching these records by address and individual characteristics to basic census records, and summarizing the information contained on these people in the census.

Another special service is public use samples similar to the 1/1000 sample of the population provided after the 1960 census. This was a sample of individual records with all individual identification removed available on tape or punch cards. Plans are in the works to produce a number of public use samples in 1970, not only a sample of the total population, but samples of Negroes, persons over 65, women in the labor force, etc.

Whether some of the proposed innovations in the 1970 census data delivery system are actually brought to fruition depends on appropriation of funds which in turn may depend on sufficient indications of user demand.

Special librarians may well want to consider whether they desire any of these products or services for their organizations. We would appreciate comments from special librarians on the need they foresee for any and all of the products and services projected by the bureau.

The Data Access and Use Laboratory is conducting a number of market probes, so to speak, of the demand for special tabulations, public use samples, etc.

So far this paper has concentrated on the actual components of the data delivery system and the services the bureau hopes to offer after 1970. An equally important topic concerns communication with and education of the user in the availability of these products and services. It does no good for the bureau to prepare public use samples, for instance, if potential clients are not aware of this service and are not educated in how to use it most effectively. Readers of this journal are in a particularly strategic position to reach users and potential users of census data and to communicate to them new developments and services.

User Guides

The Data Access and Use Laboratory is working on a number of guides and tools to the products of the 1970 census data delivery system. A user guide package is planned. The guide will sum up much of what has been discussed in this paper, briefly outlining the history of the 1970 census from schedule design through enumeration and processing to the final output. The guide will include several additional components: information about the questionnaires, a dictionary of census concepts, a number of subject and area indexes to tabulations and how they are available (in book form, on tape, microfilm, etc.), and a user needs profile form for those requiring special tabulations and services. These components are being developed

to meet the needs of a broad spectrum of user groups. If there is demand, versions of the user guide package will be prepared tailored to the needs of particular occupational groups such as bankers, lawyers, manufacturers, educators, etc.

Work on the dictionary of census concepts, or *Census User Dictionary*, is most advanced. The dictionary will bring together in one place definitions of all the geographic and subject terms and concepts used by the bureau in collecting and presenting data from the decennial censuses of population and housing. It is designed to meet a real need of facilitating accurate communication between the bureau and the user, between user and user, as well as within the bureau itself.

A draft version of the *Census User Dictionary* includes a General Introduction; Part I. Geographic Areas; Part II. Population Census Concepts; and Part III. Housing Census Concepts. The draft version is available from the Data Access and Use Laboratory, Bureau of the Census, Washington, D. C. 20233. This version, in addition to basic definitions of subject concepts as tabulated, contains information about the schedule questions from which concepts derive, the universes to which concepts apply, additional concept categories not tabulated but stored on basic record tapes at the bureau which may be available on a special tabulation basis, etc. However, information is not provided on more technical aspects of census processing which affect concept definitions, such as sample weighting, computer editing and allocation procedures. This information will be contained in a later supplemental listing of operational definitions for the 1970 census; the supplemental listing will be prepared when details of processing procedures for the 1970 census are worked out at the bureau.

To enlarge briefly on the technical aspects of creating and maintaining the dictionary, the laboratory is using a typewriter, linked to a computer, controlled by the Administrative Terminal System Software of IBM to build and store the dictionary. ATS enables additions, deletions, and changes to be made as required, thus expediting the correction and updating process.

Another tool for increasing access to available census data is an information retrieval

system which the Data Access and Use Laboratory is developing for the bureau's special projects—all those projects such as special tabulations, tape copying, or any other service for which the user pays the cost. The *Bureau of the Census Catalog* includes a section on unpublished special tabulations and data available from the bureau. The *Catalog* does not include all special projects, however, nor can it include more than a brief description of each, nor is it prepared on a cumulative basis.

The information retrieval system which the laboratory is developing will collect detailed information about every completed special project performed by the bureau: the data summaries provided, the geographic areas included, information about the format of the output, and where the data are presently located, etc. The laboratory is experimenting with programming and software facilities within and without the bureau to develop the capability to retrieve information about past special projects fast enough to answer a user's question about existing unpublished data. An example of a question such a system would handle is: "Have any projects generated data on educational attainment by occupation, income, and race for the city of Chicago?" Developing an information retrieval system of this kind will enable bureau personnel to check incoming special requests against the file of completed projects to eliminate duplication of effort, obtain guidelines as to cost and procedures from past experience with similar projects, and, perhaps, to locate data of immediate value to the current user. The system will also be useful in evaluating the market for the bureau's special services and the facility in terms of cost and time with which the bureau has met user requests.

These are some of the ways in which the bureau is moving to increase the usefulness of its vast collections of data as an information system and to communicate to users what they can obtain from the bureau's data base. The Data Access and Use Laboratory has two publications: (1) a *Small-Area Data Activities* newsletter, and (2) a series of *Data Access Descriptions*, which serve to keep interested users informed of developments in improving and expanding census data access and use.

"Great economic and social forces flow with a tidal wave over communities that are only half conscious of what is befalling them. Wise statesmen are those who foresee what time is thus bringing, and endeavor to shape institutions . . . in accordance with the change that is silently surrounding them."

—John Viscount Morley

Information Organized for Use

Our basic premise is that there is a great and growing need for more information organized in more useful ways about this nation.

The Bureau of the Census is an important source of information to make communities and statesmen conscious of social change and able to guide rather than be overwhelmed by the events of the time. The bureau recognizes the need to improve the range and flexibility of its data products and services and hopes to make major advances in connection with the 1970 census.

The bureau feels capable of improving its usefulness as an information system without sacrificing other important values and needs of the populace for privacy and anonymity. The bureau's record in the area of protecting individual confidentiality has been outstand-

ing, and it is continually working to maintain and improve its high standards.

The bureau welcomes comments and suggestions from special librarians on the bureau's plans for improving the products and services from the 1970 census data base. If these innovations prove successful, the next step will be to turn to the data bases provided by the numerous additional censuses conducted by the bureau, the censuses of business, manufactures, governments, agriculture, etc. What improvements in data access and use can be made in these areas? Working with users interested in these subjects and continuing to work with users interested in the population and housing census products, the bureau hopes to steadily increase its capability to serve as an information system of real utility in meeting the research and policy needs of the nation.

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Received for review June 10, 1968. Accepted November 15, 1968. Mrs. Citro is staff assistant in the Data Access and Use Laboratory, Bureau of the Census. Presented at the Third General Session, 59th Annual Conference, SLA, Los Angeles, Calif., June 6, 1968.



Breaking the Information Network Barrier

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■ Barriers to information service are the human reluctance to search and the difficulties inherent in the use of descriptors across disciplines. Words are imperfect and limiting labels when used by experts. A computer program is described to encourage the user to match his needs with data available. To provide information service with a "tacit dimension" requires a total experience with the input to the network in terms of unique requirements of the user. The information flow pattern is described.

SPECIAL LIBRARIES or information centers have merged from the crisis of identity of the recent past. Our public knows who we are and, in general, what we do—even though we cannot agree on a name. The term, library, is used in this paper to mean the reference collection and information service to mean the retrieval process. Recognition of both has been enhanced by the use of electronic machinery which has captured the fancy of people everywhere. We cannot allow dependence on this mystique to widen the barriers between the user and the stored information.

One barrier to retrieval is reluctance to look for anything. Man—and woman—avoids the frustrations of a search whether it be for the correct accessory to add psychedelic color to the blue serge suit, or an elusive bit of correlation data developed long ago and far away.

Another barrier is in language interpretation and the fact that words are imperfect and limiting labels for meaning even when used by experts (especially when used by experts from different disciplines).

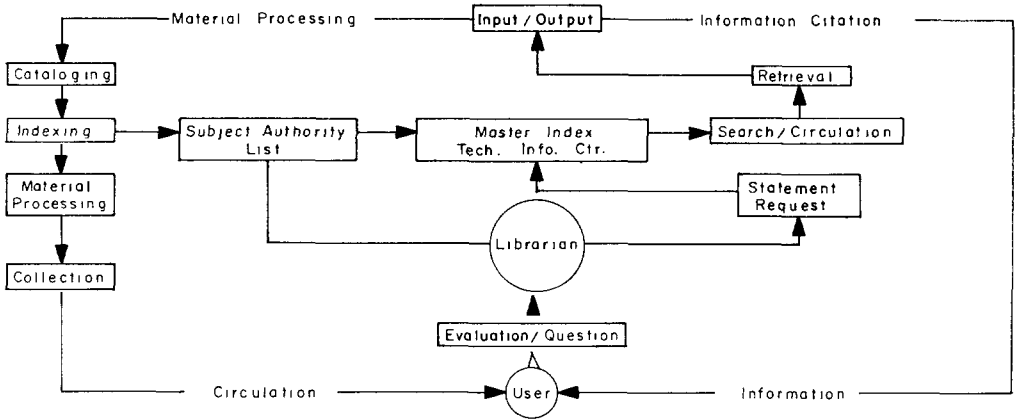
Figure 1 is a diagram of the processes in an information center. The input is the "library," the organized collection. The output is the information service. Pertinent, consistent and efficient input is a basic requirement of critical importance. Without minimizing that essential, we will assume that we have solved the problems of input and that no serious clogging obstructs the processing flow of materials.

Figure 2 is a diagram of the input materials and the processes which make them a reference collection.

The Tacit Dimension

To break the information flow barrier, the special librarian must see the total picture of the interaction and limitations of the input processes inherent to the collection in terms of the requirements of the person served.

Figure 1. Information Center Processes



The machine can aid us in getting this picture. We have devised programs to lead the user—who likes to play at the computer—into helping us search for the meaning of his question by use of a program that matches our subject authority list with the content of our store of information, data bank.

This action between the user and a data bank is a meaningful dialog which has a tacit dimension. It need not be at a machine and most often it is person to person.

The Tacit Dimension is described by Michael Polanyi as a total experience, free of its separate details. He says we know the use of an automobile in a different way than we can demonstrate by the physical data involved, and this knowing is more meaningful than the most complete engineering study of the parts of the engine and combustion principles. He calls this different knowing *the tacit dimension*. I recommend his book to you.

Information flow has a tacit dimension. When you consider the input operation in its dynamic interaction, you know that it is different from the sum of its separate parts; and if the parts are well chosen to enhance each other, it is much greater in value.

I and Thou

The special librarian serves a user (Figure 1). We have assumed that our data bank (the input) contains pertinent information, indexed in definitive descriptors from a thesaurus familiar to our user. We approach the problem of interpretation of a question a user brings to the center with an awareness of the difficulties inherent in the encounter. The barrier here will be made up of the reluctance of the user to expose his needs and to accept assistance, and his tendency to protect his job advantage by squirreling away the very information he may need. But the greatest barrier will consist in the difficulty of establishing an *I* and a *Thou* contact between the server and the person served. Perseverance is recommended while reading Martin Buber's wonderful book, *I and Thou*.

We are challenged as never before to meet our customer in the space that separates us, in true dialog as *I and Thou*. Then and only then, meaning will flow freely across this interpretation barrier. Only when we know what our user wants can we hope to supply it.

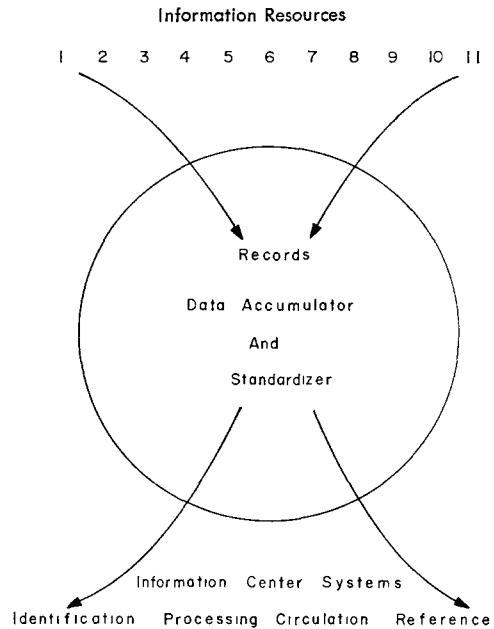
The information transfer chain is shown

Figure 2. Input Materials Processed into a Reference Collection

in Figure 3. It serves as the search pattern in the Products Division's Technical Information Center. The librarian meets information flow barriers at four points in this chain. Surmounting these barriers will result in positive feedback to the input end of the service system.

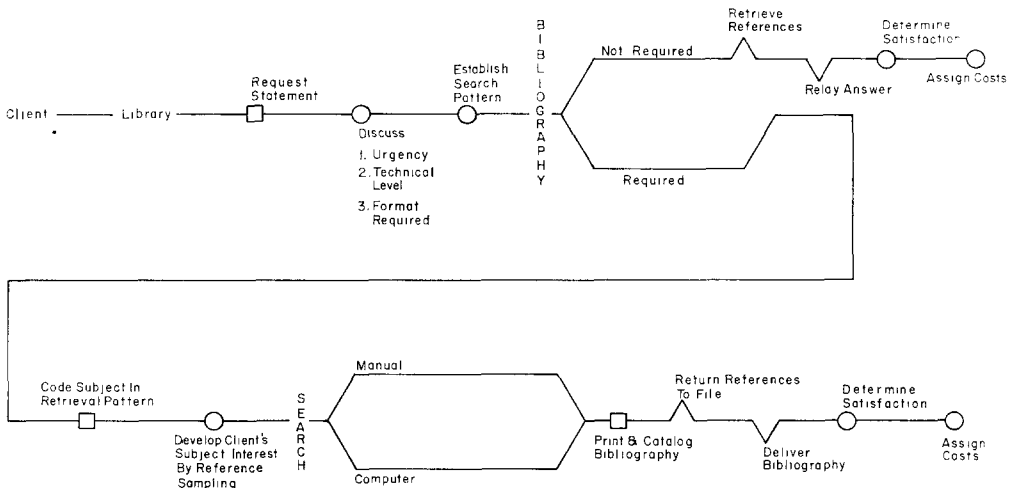
At the statement of the request, the *first* opportunity arises. Great precision in word definition is not the most valuable asset at this point, although agreement on a subject authority list is necessary. The tacit dimension is important here. What the user really wants will be revealed in his total person, where he works, what kind of work he does, how well he knows the information center, and how much at ease he feels. His words will be cues enhanced by these other factors. The successful reference encounter will be one in which all of these combine, supplementing the verbal dialog, and the meaningful question in terms of the user's needs will have been posed.

The *second* challenge is in the establishing of the search pattern. Here we interpret the user's needs into the language of the input



processing. A thesaurus has been developed to fit the needs of our information center. It is a network of narrower terms with precise interfaces in a hierarchy of broader terms to encompass our field of knowledge. It is open-ended to permit inclusions. The librarian phrases and rephrases the question in the processing language if the question was not

Figure 3. Information Transfer Chain



immediately solved from readily available sources. The user is asked to approve the phrasing by asking him if the statement is valid for his needs.

The *third* challenge to good service comes when the librarian considers the needs of the user in terms of the input to the data bank to be searched. At this point a total experience with the subject areas of input to the system and the rules governing abstractors, indexers, editors, and programmers is important. All this must enter into our interpretation as an accumulation of experience, but we must approach the system with the ability to deepen our focus to the tacit dimension to avoid a kaleidoscopic effect. We search for meanings not words. This is important.

Next we decide on a manual search or a computer search. This decision is based on the urgency or comprehensiveness of the required search as indicated in the interview. The bibliography is printed, and we determine the user satisfaction which is our *fourth* opportunity to explore the tacit dimension and gain feedback to effective service.

Dialogs Surmount Barriers

We live in the exciting space age. Perhaps the most exciting space we explore is inner space. As reference librarians we are privileged to spend much of our waking time in this exploration in our attempt to break the information transfer barriers. The key to

success is in establishing a dialog between the user and the information in a tacit dimension.

Breaking the information network barrier will follow the same basic logic. As information services become available in specialized areas, we will want to make use of them. It is improbable that any one service will abstract and index all information. When we call for assistance with a question in separate fields of specialization, we must hurdle the information flow barriers. We will be more effective if we recognize that we operate in the *tacit dimension* of information service.

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Received for review June 15, 1968. Accepted November 12, 1968. Presented during the 59th Annual Conference, SLA, Los Angeles, Calif. on June 4, 1968 at a joint meeting of the Aerospace, Business and Finance, Chemistry, Documentation, Military Librarians, Nuclear Science and Petroleum Divisions. The joint session was titled Breaking the Information Barrier within a Company. Mrs. Dale is supervisor of the Richfield Division's Technical Information Center.

SPLBA

Five unpronounceable letters appear for the first time on the cover and masthead of *Special Libraries*; SPLBA is the five-letter Coden for this journal. This usage is in agreement with Standard Z39.1-1967 of the United States of American Standards Institute.

USASI Committee Z39 is sponsored by the Council of National Library Associations of which SLA is a member. The chairman of Z39 is Dr. Jerrold Orne; SLA's Special Representative to Z39 is Mrs. Anne J. Richter who serves as vice-chairman of Z39. She was also chairman of Z39's Subcommittee 10 which promulgated the *Standard for Periodicals: Format and Arrangement*. Other members of the subcommittee are: Forrest F. Carhart, John E. Duncan, Barron Franz, Marie Goff, Eileen Graves, Ellis Mount, Harold Oatfield, and James L. Wood.

It is appropriate that *Special Libraries* support Z39's efforts toward standardization in library work.



The Design of Information Systems

The Use of Systems Analysis

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■ The systems engineering approach is a very powerful technique for analysis of an existing information system. It consists of an analysis of the total information system, its responsibilities, procedures and staff. Each part of this systems analysis is discussed. Evaluation criteria are selected to judge the overall value of an information system. One evaluation criterion, staff time, is selected to illustrate how it influences the design of the optimum system for books. Flowcharts and linear programming methods are described.

When the existing system has been analyzed, it is possible to design the optimum information system which is organized in the most efficient way as well as making maximum use of its available resources: people, time, money, materials, equipment, information. The information systems manager prevents technical obsolescence of this optimum information system by formulating a long range plan which he re-evaluates and re-adjusts as the objectives, limitations and other environmental conditions change.

THE need to meet current demands and solve new problems has created a great amount of documented information. Our ability to transmit, store, retrieve, manipulate and display information and data systematically will greatly influence our society and help initiate new areas of research. Information systems problems include effective organization and utilization of available resources; the development of remote-access, time-shared, digital computer systems; the need for more extensive memory systems; the investigation of methods of storage and

retrieval of information for a variety of users and equipment; the use of on-line experimental data processing systems, to name but a few.

In this discussion, emphasis is placed on solving the problem of effective organization and utilization of available resources in any library, information center or other type of information system.

Who has not been faced with the problem of how to divide the total work to be done and to choose a method of doing it? You may be faced with the problem of not enough

resources such as people, time, money, materials and data. How can you use available resources effectively to reach the objectives of your information system? Systems analysis can be used to find solutions to such problems.

What Is Systems Analysis?

A system consists of many parts or subsystems that operate independently and in combination to achieve a stated objective. Figure 1 is a schematic drawing of the techniques of systems engineering. It is the process of analyzing an existing system in order to design the optimum system. It may be found that the optimum system is, indeed, the existing system, or a modification to the existing system, or a completely different system.

Systems analysis is that portion of the process which defines the subsystems as well as their relation to each other and to the total system. Systems analysis is the main topic of this paper. Once the system is analyzed, it can be designed to be the optimum system. Criteria for the optimum design are as follows:

1. The subsystems work together in predictable, measurable terms.
2. The objectives of the system are achieved within the limitations or constraints imposed upon the system.

System Characteristics

Each system has a set of characteristics which differentiate it from any other system. Some typical characteristics of systems are:

1. Systems are dynamic in various degrees.
2. Each system has its own objectives.
3. There are alternate ways of reaching a given objective in a given system.
4. Each system has its own environment.
5. The criteria used to judge the value differ for each system.
6. Each system has its own limiting factors.
7. The optimum design differs for each system.

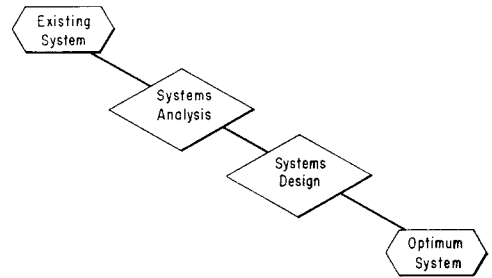


Figure 1. Systems Engineering

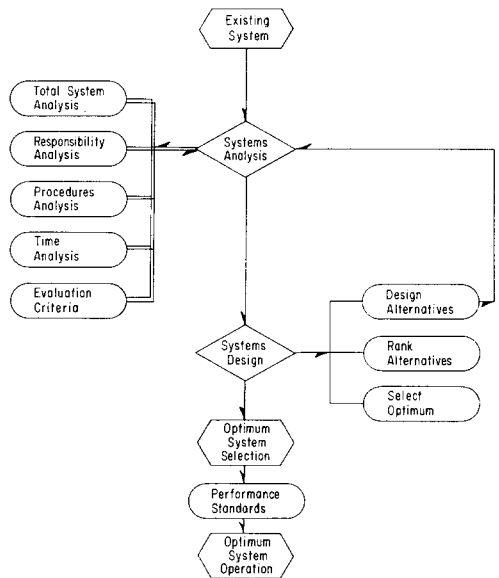


Figure 2. Systems Approach. The steps shown are the systems approach to the design of the optimum system.

Some systems may not have all of these characteristics while other systems may have additional characteristics not mentioned here.

Analysis of the Total Information System

Let us now examine the use of the systems approach to information systems.

An information system consists of many parts or subsystems that operate independently and in combination to achieve stated objectives. Thus, the first step in our analysis of the total information system is to state its

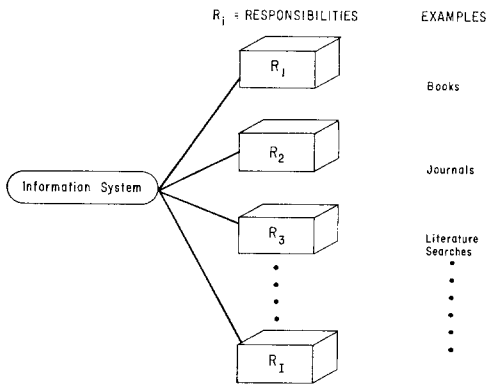


Figure 3. Information System Responsibilities

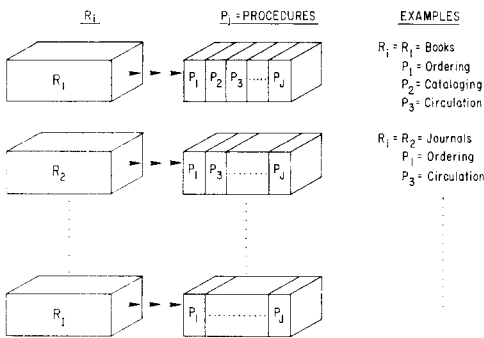


Figure 4. Information System Procedures

objectives. In general terms, the objective of an information system is to provide information to the user when he needs it and in the form he needs it. But this is too general. We must define the specific objectives of our information system in terms of the following factors:

1. Subjects to be covered,
2. Users to be served, and
3. Services to be provided.

Furthermore, we must define the specific

limitations or constraints which are imposed on the information system, such as,

1. Performance, for example quality and/or quantity of service;
2. Operation, for example staff and costs of the total information system; and
3. Design, for example types of equipment and the amount of space which can be used.

Analysis of Information System Responsibilities

Having stated its objectives and constraints we are ready to look at the subsystems. These subsystems consist of the functions or responsibilities of the information system. What are the specific responsibilities and how do they relate to one another and to the whole information system?

The number of responsibilities of the information system can be denoted as R_i where $i = 1, 2 \dots I$. These responsibilities can be illustrated as shown in Figure 3 as R_1, R_2, R_3 and so on to R_I . For example, R_1 could represent the responsibility of books, R_2 journals and R_3 literature searches.

Analysis of Information System Procedures

We are now ready for the analysis of components of each responsibility. Each responsibility consists of a number of procedures or activities which must be carried out. The number of procedures for a responsibility can be denoted as P_j where $j = 1, 2 \dots J$ represents the number of procedures that constitute responsibility R_i . Thus, in Figure 4, for each responsibility R_i , we have a set of procedures $P_1, P_2, P_3 \dots P_J$.

For example P_1 can represent ordering, P_2 cataloging, P_3 circulation. If we are referring to R_1 books then P_1 can represent the ordering of books, P_2 cataloging of books and P_3 the circulation of books.

Now, not all procedures are required for each responsibility. Thus in Figure 4, R_2 representing journals may have procedures P_1

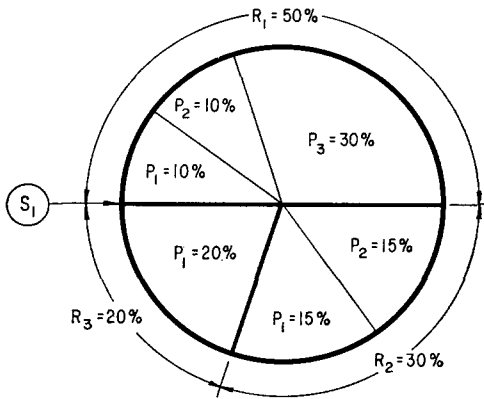


Figure 5. Individual Staff Time Distribution

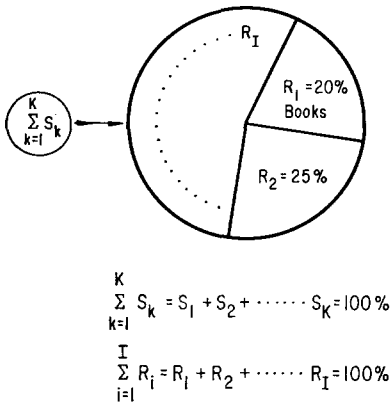


Figure 6. Information System Time Distribution

journal ordering, and P₃ journal circulation but not P₂ journal cataloging. Our next step in our information systems analysis is to make a time analysis.

Information Staff Time Analysis

Now that we know what is going on in the information system, we need to find out who is doing it, and how much time it takes. These data can be readily compiled by having each person on the staff keep records indicating the time spent on each procedure P_j for each responsibility R_i which we have

already defined. Over a period of time, one obtains an average of the time expended.

If we let S_k where k = 1, 2 . . . K, represent the number of information staff persons, we could obtain the individual staff time distribution chart for S₁ staff person shown in Figure 5. For example, staff person S₁ spends 50% of his time on R₁ books, 30% on R₂, 20% on R₃. Furthermore, we can see that the 50% of S₁'s time spent on books consists of 10% on P₁ book ordering, 10% on P₂ book cataloging and 30% on P₃ book circulation.

If we add up all the staff time $\sum_{k=1}^K S_k$ we obtain the total amount of time (100%) used to carry out the sum of all the responsibilities $\sum_{i=1}^I R_i$ of the information system.

An example of the total time distribution which might be obtained for an information system is shown in Figure 6. Here, we see that books, R₁ requires 20% of the total staff time and R₂ requires 25%. The remaining 55% is expended on the rest of the responsibilities.

We can also present this same information on time distribution in the more abstract form of a matrix shown in Figure 7. Here a_{ijk} represents the amount of time spent on procedure P_j of responsibility R_i by staff persons S_k. Thus in our example the amount of time (10%) spent on procedure P₁ book ordering by staff S₁ would be represented by a₁₁₁ = 10%.

Evaluation Criteria

After this initial analysis of the responsibilities, procedures and time allocation of the information system, we have a good basis for further detailed analysis to evaluate the overall value of the system.

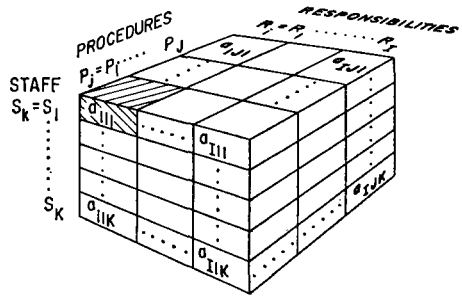
The overall value of an information system may be measured in terms of the "the return on investment." In other words, do we

have the best value or optimum information system for the amount of time required to produce it in view of its cost, its performance, availability, reliability, maintenance and flexibility? To determine whether we do, we can evaluate each responsibility in terms of the factors mentioned which also include system limitations and then evaluate the total system. Evaluation is crucial to the optimization of a system. As shown in Figure 8, we can designate these factors as C_l where $l = 1, 2 \dots L$ represents the number of criteria to be used to evaluate the information system.

A comprehensive systems analysis of each responsibility using all the evaluation criteria of interest will lead to a better utilization of the available resources. However, some evaluation criteria may be more important than others at a particular time or for a particular responsibility. Thus, it is essential to define and understand each evaluation criterion in relation to each other and to the information system as a whole.

RELATIVE VALUES OF EVALUATION CRITERIA. Since not all of the evaluation criteria are of equal importance, one can assign different weight factors for each criterion. Thus for example in a particular information system, the criterion processing time for books can be assigned a weight factor of 10 if it is twice as important as the cost of the books which is assigned a weight factor of 5. But how do you know what weights to assign? Experience and knowledge of a particular information system provide guidelines to assigning and balancing these weights to obtain the optimum information system.

BALANCING THE WEIGHT FACTORS OF EVALUATION CRITERIA. The person who knows the environment and operation of a particular information group is the best person to perform the analysis of the overall value of the information system. This person knows which evaluation criteria are most critical.



a_{ijk} = Amount of time spent on procedure P_j for responsibility R_i by Staff S_k .

EXAMPLE:

a_{111} = Amount of time (10%) spent on procedure P_1 for responsibility R_1 by Staff S_1

Figure 7. Matrix for Information Staff Time Distribution

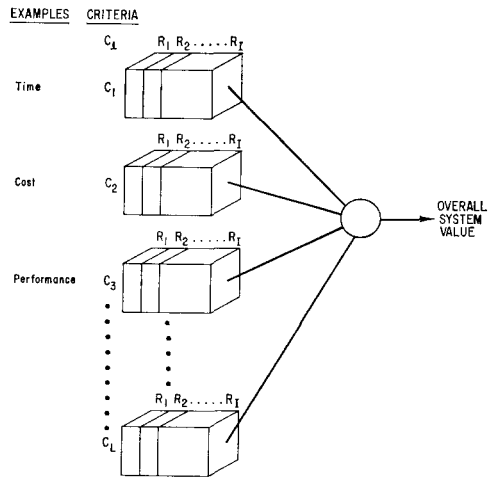


Figure 8. Criteria for Information System Evaluation

He proceeds to analyze the most critical criterion first and from his results he can decide which criterion should be evaluated next and which criterion is not relevant to the information system under consideration. As a result of balancing the weight factors and trade-off studies of the evaluation criterion, he can design the optimum information system for a particular group. Ultimately, the optimum system design is the best compromise of the evaluation criteria. However, the optimum information system for one group is not necessarily the same as for another group whose evaluation criteria may differ.

Analysis of Staff Time as an Evaluation Criterion

Let us look at one evaluation criterion for one responsibility to see how it influences the design of the optimum system for that responsibility. The evaluation criterion, staff time, is of critical importance to the information systems administrator and to his management. It is essential to know whether the available staff time is being used efficiently. Answers are needed for questions such as the following:

- Is there too much work to be handled by the current staff?
- If there is too much work, what work is not being done?
- How much more staff is needed to handle the current work?
- If new responsibilities are being added, who will do the work?
- Is the work load well balanced among the members of the staff?
- Are the right people doing the right job?

These and other similar questions will often lead to the selection of staff time as the first critical evaluation criterion for detailed analysis.

Let us examine the evaluation criterion, staff time, to see how it will influence our design of the optimum system for the responsibility of books. Let us suppose that from the staff time responsibilities chart (Figure 7) which we compiled, we see that 20% of the total staff time is used for the book responsibility R_1 , that is, $a_{1jk} = 20\%$. Let us further suppose that the library administrator considers 20% to be twice as much time as he thinks the books should take in relation to their "return on investment," that is, the extent to which the users consult books for their information. How does he go about reaching the objective he has set of 10% reduction $a_{1jk} = 10\%$ of staff time for the book responsibility? He could say, "let's buy half as many books." However, this would certainly decrease the overall value of information system to the users. Further-

more, this would not necessarily decrease by one-half the amount of staff time spent on books.

Simultaneously, the administrator should also select those responsibilities to which he feels the staff should devote more time when he reaches his objective of 10% reduction in time for R_1 . Those responsibilities selected would then be analyzed subsequently.

Let us return to our analysis of the amount of time spent on books, that is $a_{1jk} = 20\%$. We must first list the amount of time required for each procedure for books. For example, the amount of time for book ordering a_{11k} could be 5%; book cataloging $a_{12k} = 10\%$; book circulation $a_{13k} = 5\%$; these add up to a total of $a_{1jk} = 20\%$. To find out which of these amounts can be reduced we must first know all the steps involved in each procedure. The best way to visualize what goes on is to draw detailed comprehensive flowcharts for each procedure.

These detailed flowcharts can be compiled by a staff member. They can also be compiled by persons skilled in flowcharting—but not necessarily in library procedures. These persons are impartial to the number of steps and the amount of time required at each step. However, the accuracy and completeness of each flowchart should be checked, and modified where necessary by all the persons who handle the responsibility to make sure there has been no discrepancy and misunderstanding of their responsibility.

A portion of a flowchart for the procedure P_1 ordering of books R_1 is shown in Figure 9 as an illustration. Detailed flowcharts should be made for all procedures P_j related to books R_1 . To those flowcharts can be added the amount of time expended on each step of the procedure. From a study of these detailed flowcharts one can determine repetitive operations such as when a book goes to one person for labelling, to another for book pocket and circulation card, and then back to the first person for circulation. If only one person is assigned to do all of these procedures in sequence, it will take less time

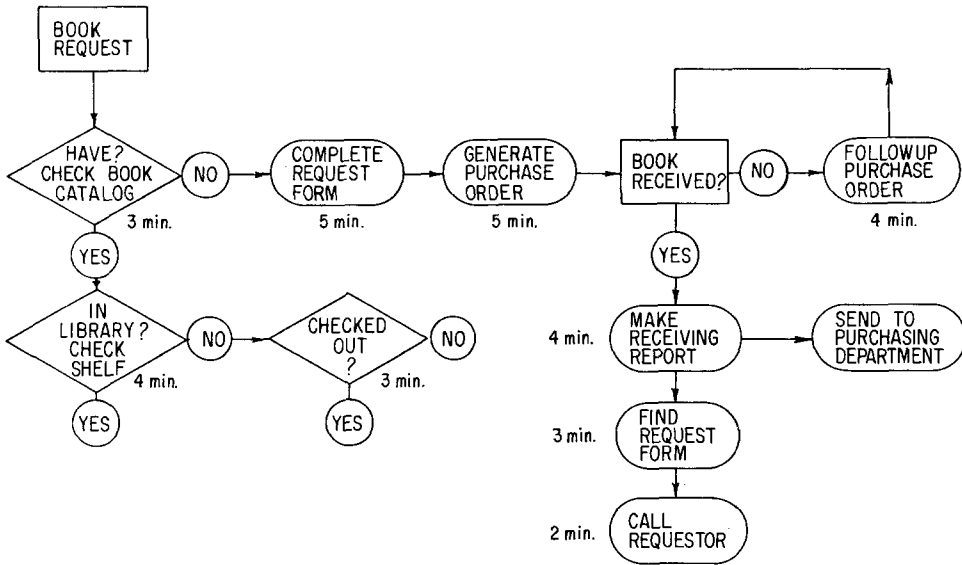


Figure 9. Portion of Flowchart for P₁ Ordering Procedure for R₁ Books

than the combined time of the two persons. In addition, there will be no delay between processes and hence, the books also get processed faster.

An additional problem which might be spotlighted in such flowcharts would be the creation of too many forms at various steps such as for ordering, for approval, for ordering cards, for notification, for filing, etc. Some of these might be combined resulting in a considerable saving of time for those staff members involved.

Frequently simplification and streamlining of existing procedures will result in considerable saving of time, frequently of the order of 5–10%.

Further reduction in the staff time of the order of 3–5% may be made if the person assigned to the procedure is the best qualified on your staff for that job. (Are your cards typed by the best typist on your staff in terms of speed and accuracy or is this person assigned to filing instead? Are you using professional staff instead of clerical staff for some steps?) Considerable savings in time could be made if these procedures were exchanged or traded-off, where feasible.

Let us assume that by use of this type of analysis in our example, we are able to save 5% by streamlining existing procedures and 3% by trading off procedures among the staff. Thus we are able to reduce a_{1jk} by 8% making it equal to 12%. Our initial objective was $a_{1jk} = 10\%$. Now the administrator has to decide whether he should accept 12% or whether he should seek a new design for the book responsibility which will have as its objective $a_{1jk} = 10\%$. In this particular case, a gain of only 2% may not make it worthwhile to seek a new design. The administrator may accept $a_{1jk} = 12\%$ as the optimum system for the book responsibility using staff time as an evaluation criterion.

Mathematical Formulation of Systems Analysis Problems

Another way of performing systems analysis is to state it in a mathematical form. We can state the problem as that of trying to find that set of procedures P_j so that the total time allocated to responsibilities R_i is a minimum. This problem can be formulated in

matrix form and solved using linear programming techniques.

If we let,

$R_i = b_i$ be the allocated time per responsibility, where $i = 1, 2 \dots I$

$P_j = X_j$ be the number of possible or desirable procedures, where $j = 1, 2 \dots J$

a_{ij} = The amount of time required to carry out that portion of responsibility i which is performed by procedure j

C_j = The amount of the weighted time cost expended by procedure j

T = The total weighted time cost which is computed from:

(Staff members) (Time/Staff member) (Weight Factor)

$$[A]_{I \times J} = \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1I} \\ a_{21} & a_{22} & \dots & a_{2I} \\ \cdot & & & \cdot \\ \cdot & & & \cdot \\ \cdot & & & \cdot \\ a_{I1} & a_{I2} & \dots & a_{IJ} \end{bmatrix} \quad [\text{Eq. 2}]$$

$$\{x\}_{J \times 1} = \begin{Bmatrix} x_1 \\ x_2 \\ \cdot \\ \cdot \\ x_j \\ \cdot \\ x_j \end{Bmatrix} \quad \{b\}_{I \times 1} = \begin{Bmatrix} b_1 \\ b_2 \\ \cdot \\ \cdot \\ b_i \\ \cdot \\ b_i \end{Bmatrix} \quad [\text{Eq. 3}]$$

$$\{C\}^T_{1 \times J} = [C_1 \ C_2 \ C_3 \ \dots \ C_J] \quad [\text{Eq. 4}]$$

The system can also be written alternately

$$\begin{aligned} Ax &= b \\ Cx &= T \end{aligned} \quad [\text{Eq. 1a}]$$

which is more convenient and the meaning of the symbols is clear from the definition given above.

The linear programming problem now is stated as follows:

Find that set of procedures so that the total time allocated for the system (T) is a minimum.

In mathematical language this is:

$$T + Cx \rightarrow \min$$

where $Ax = b$

and $x_j \geq 0$ where $j = 1, 2 \dots J$

Standard linear programming techniques can be applied to obtain that set of procedures which is most efficient and effective. The effectiveness of the system is assured by the way the problem is formulated.

Information System Design

When the systems analysis is completed for the existing system or subsystem, one begins designing the optimum system. Systems design consists of the following steps (which are also shown in Figure 2):

- 1) Perform an analysis of each alternate system. This includes the analysis of the responsibilities, procedures, time, evaluation criteria and their relation to the total system.
- 2) Rank order the most promising alternatives. List the advantages, disadvantages and the compromises among the evaluation criteria which would be required for each alternative.
- 3) Select the alternative which is the best compromise to provide the optimum information system.

Now that we have designed the optimum information system we are ready to set performance standards and put the system into operation.

Performance standards must be established so that we can measure how well the optimum system is doing the function it was designed to do. These standards may include for example, the amount of time expended on each subsystem, the quantity of materials processed, the cost. We are now ready to implement the optimum system.

Operation of Optimum Information System

Now the real work begins! One must convince other persons in the organization that this is the optimum system. First, management approval may be necessary when the optimum system includes requirements such as the expansion of staff, facilities or equipment; the initiation of new services; the discontinuation of existing services; the use of facilities outside the information center.

Next, user acceptance or approval may be necessary when new services are being added or old services discontinued.

The systems analysis approach is an ideal format for communicating the objectives, responsibilities and problems of the information center to the top management and to the users of an organization. In addition, educational seminars may be necessary to describe new services to the users.

The staff of the information center should all participate in the systems analysis and selection of the optimum system. If they have not participated, it may be necessary to convince them that you have selected the optimum system, particularly those persons whose responsibilities will be changed when the new system is in operation. There is always a certain degree of reluctance to change of any kind. There is a tendency to think the old way is better because we know how to do it. It is therefore essential that staff be informed of the basis of the systems analysis, the reasons for the changes, as well as the objectives of the new system. Training programs should be provided to acquaint staff members involved with the details of the new system and the performance standards which have been established. The time schedule for putting the new system into operation should be clearly stated. If at all possible, set a date on which you will start the new system and discontinue the old system. It is too confusing to have a period of overlap where both new and old systems are in operation.

Once the new system is in operation make sure that it conforms to the performance standards which have been established. Maintain a close scrutiny for additional modifications which may be necessary. A continuous monitoring with feed-back from the staff persons and users is the best way to keep the operation running smoothly and attuned to any changes which would continue to improve the system.

Long Range Master Plan

Once we know what subsystems should be optimized, we are able to formulate and design a long range master plan to obtain the optimum information system in a particular environment. This plan will include the following items:

- 1) The objectives, limitations, evaluation and responsibilities of the information system.

- 2) The priority assigned to each responsibility to be optimized.
- 3) The time schedule for the optimization of each responsibility.
- 4) Description of how each responsibility is to be optimized, and the alternatives which were considered.
- 5) The reasons for the optimization of the information system.
- 6) The advantages which will be gained when the information system is optimized.
- 7) The resources which will be required as each responsibility is optimized.

The long range plan for an optimum information system can be considered a statement of what is available today and what you would like to have at a certain tomorrow. You will use the plan in many ways. For example, when your plan calls for the use of data processing equipment in certain responsibilities, you will be able to communicate to management and to the computer programmers what is needed in terms of cost, staff, equipment and other criteria. In addition you can state why this is needed in relation to your objectives, how it can be done, when it should be done and what are the alternatives.

With such a long range plan for the optimum information system, one has a yardstick to measure periodically the degree of progress made. Each responsibility is kept in perspective but the plan should be flexible to add or change responsibilities when the environment, objectives or limitations change. Thus, for example, many company libraries have a different environment when their organization merges or acquires another organization. A library may have been the only library within an organization before the merger. After the merger, the original library may be one of several libraries, some larger and some smaller, within the new organization. If each library had a master plan for reaching the optimum information system, it would be a very effective basis for communicating with each other and for building an effective library network within the new organization.

Summary

The systems engineering approach is a very powerful technique for analyzing an

existing information system to investigate whether it is organized in the most efficient way as well as making the maximum use of its available resources. Only two answers are possible, either "it is" or "it isn't." If it is, you're lucky since you have reached the goal of the optimum information system for a given set of objectives and limitations. If it isn't, then you have a lot of work to do to design the optimum information system. You retain those information subsystems which are optimized. You improve those subsystems which are not optimized by using all of the techniques of systems engineering.

The techniques of systems engineering include the following:

- 1) Analysis of the relation of the subsystem to the total system to determine its importance and priority for further analysis.
- 2) Analysis of the subsystem or responsibility.
- 3) Analysis of the procedures for the responsibility.
- 4) The selection of evaluation criteria to be utilized—their relative value, weight factors, and compromise.
- 5) The use of flowcharting techniques to visualize the details of the subsystem.
- 6) The use of linear programming techniques to select the optimum subsystem.
- 7) The design of alternative subsystems which would improve the existing subsystem.
- 8) The rank ordering of these alternatives in terms of their advantages and disadvantages, goals, limitations, and evaluation criteria.
- 9) The selection of the optimum subsystem which is the alternative that is the best compromise within a given set of objectives and constraints.
- 10) The specification of the performance standards for the optimum system in predictable, measurable terms to evaluate whether the optimum system does what it was designed to do.
- 11) The operation of the optimum system which must be preceded by informing management, users and staff of the changes to be made. Feedback from these groups is essential to mon-

itor the optimum system and make further improvements which may be necessary.

- 12) The formulation of a long range plan and its implementation.

The use of systems engineering techniques in information systems ensures the effective utilization and management of existing resources and makes it possible to plan for more valuable systems through the addition of further resources. In addition, the effectiveness of the individuals involved in information systems work, particularly those in management, will be improved in the following way.

- The information systems manager gains a keen insight and good perspective into the problems when he is forced to organize facts and information problems when performing systems engineering. This insight and perspective might otherwise take years to develop in a person on the basis of experience alone. In addition, a clear concept of the problem is often as valuable as the answer itself and leads the manager to deal with causes rather than effect—the solutions rather than stop-gap techniques.
- The manager makes wise and more successful decisions on the optimum system when he knows that he has examined all the possible solutions using systems analysis and linear programming. He is confident in his decisions. Furthermore, if deviations from the optimum must be made, he has a full knowledge of the consequences.
- The manager runs a smooth effective information system when he knows what orders to issue to get the expected results. He can measure the actual efficiency using the performance standards.
- The manager prevents technical obsolescence of this information system by having a long range plan which he re-evaluates and readjusts as conditions change.

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Nursing School Library Classification Systems

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■ The baccalaureate program for nurses and nurse training courses in hospitals are compared. The value of well equipped libraries in each program is pointed out; the quality of the library is often a basic difference in the two programs. Four classification systems used in the student libraries of hospital nursing schools are discussed briefly—pointing out some advantages and disadvantages of each system. The nurse-instructor goes into detail on each of many curriculum subjects, and it is important that all book materials on each curriculum course be at the same location. The nursing school library is not quite as rigidly medically oriented as other libraries of the medical profession. Therefore some medical classification systems are unsuited to the needs of the student nurses.

HOSPITAL nursing schools are raising their academic standards with the result that good libraries are of the greatest importance to the schools. Along with the academic upgrading of nursing schools, there is a trend toward the requirement of a B.S. degree for nurses. The baccalaureate program is offered at colleges and universities with large libraries that usually have a good collection in many subjects. The bachelor's curriculum offers a good basic liberal arts program during the first two years; and the medical-surgical courses with some hospital orientation are offered in the last two years.

The library available for such a program is usually the college or university library where the nursing and medically related materials are classified with the applied sciences or with philosophy. A comparison of the baccalaureate and the hospital programs shows that a nurse trained in a hospital nursing school has had about the same number of hours of patient contact as she has had class-work. A well equipped library is quite important to each student.

The Dewey Decimal Classification is for a much broader range of subject material than is to be found in most hospital nursing school libraries. The nursing school library seems to be an especially poor example for the use of the Dewey system because most materials are in specialized areas of medical orientation. Just the same, many nursing schools use the Dewey Classification, and all materials are classed in some part of the 600's. *Psychology* is classified in the 100's—to be exact, in the 150's depending on the age group and the type of psychology discussed in the book. There is then quite a numerical gap between the *Psychology* class and the *Psychiatry* class (Dewey 613). Because nursing schools are usually set up for the sole purpose of training nurses, there are usually no holdings in other Dewey classes. At times doctors or other persons may donate books to a nursing school library, but this does not happen very often. Because many books are designated for instructors' offices or for a faculty library, the classification in the student library becomes quite awkward for student use when there are large gaps in the class numbers.

The Library of Congress Classification is more appropriate for medical libraries for



doctors than for libraries for nurses. The LC system is too technical for nursing schools. *Psychiatry* would be classified in either the RT class (if it applied to psychiatric nursing) or in the RZ class (if the book applied to psychiatry alone). Thus the LC classification can scatter this subject in different classes. The nurse—and especially the student nurse—likes to find the books she needs all in one section of the library.

The Bellevue Classification System¹ is a limited system. Some schools use the Bellevue System but most nurse-instructors cover many subjects more thoroughly than can be accommodated by this system. This and other points make the Bellevue System inadequate for nurses. The classification for *Psychiatry* would be one example. *Psychiatry* is classified with *Neurology* even though the two subjects are taught independently. Psychiatry is taught at a nearby affiliated psychiatric institution, while neurology is usually taught along with the medical-surgical courses. Some neurotic disorders are also psychotic in nature, but material about such neurotic disorders are classified with psychiatry. The two subjects are grouped together in the 400's in the Bellevue System which is not an efficient arrangement for nurses.

The class for *Food, Nutrition and Dietetics* is a rather confusing and limited category for books on these subjects. As this area of instruction is taught differently in most schools, the nutritional treatment for illness could be scattered in every section of nursing school libraries. A book on the nutritional treatment of infectious diseases in children may just have a chapter or so on nutrition, while other chapters may cover the psychological aspects of feeding such a

child and the kinds of food which are best for the particular illness. Yet the book may seem to belong with the other Dietetics material. It is necessary to find a good definition of *Dietetics* and one for *Nutrition* before you decide how to classify such a book. Another definition which might help in this situation would be one for *Pediatrics*. How do you determine whether a book on the "Vitamin Content in Food" is for *Food for the Normal* or *Food for the Sick*?

In the Bellevue System, periodicals and other ephemeral material are also classified and cataloged. Back issues of nonprofessional periodicals are not retained in a nursing school library. Only special issues on important medically related subjects are retained. Usually the nonprofessional periodicals are retained for only two or three months. Then important medically related articles are removed from the magazine and kept in a clipping file which is strategically located for student use. The nursing, or professional, publications are arranged alphabetically by title. In a school with 25–30 students in a class, it is important to have several copies of some professional articles. Some hospital periodicals are also found in nursing school libraries.

Another approach is by Subject Classification; that is by the subjects of the school's curriculum. This system is proving to be a functional one in our school. Some students come to the library during their class breaks; with the material on a given subject all located in one section they need not use the card catalog to locate a particular book.

There are nine main areas of instruction in The School of Nursing at St. Luke's Hospital:

- *Basic Science*, including anatomy, physiology, chemistry and microbiology;
- *Basic Nursing*, including the fundamental procedures of nursing along with some practical experience in the hospital setting;
- *Nutrition and Diet Therapy*;
- *Pharmacology*;
- *Medical-Surgical Nursing*, including surgical nursing, eye, ear, nose and throat nursing, gynecology, orthopedics, pathology, geriatric nursing, internal medicine, communicable disease nursing, diabetes, disaster nursing, rehabilitation care and treat-

ment, urology, dermatology, cardiology and team nursing;

- *Maternal-Child Health*, including pediatrics, obstetrics and some related community agency care;
- *History, Trends and Professional Adjustments*, including the history of nursing and the professional practice of the nurse; and
- *Psychiatry*.

After the students start their medical training in the hospital, each year they receive more hospital assignments along with their classwork.

In the Subject Classification System books are arranged alphabetically by author within a particular subject. The psychiatric books, for example, are all together; one book which might well be put with biographical works is *I Never Promised You a Rose Garden* by Hannah Green which is the story of a young girl who is a paranoid schizophrenic (and the therapy for such a person). This book is classified with other psychiatric material because this illness is studied in psychiatry, and because the book is usually required reading in most psychiatry courses.

The card catalog is arranged like any other card catalog (author, title and subject). The subject where the book is located on the shelves is indicated on the card by the subject abbreviation, and all subject sections on the shelves are labeled. Periodicals, or magazines, are treated the same in this system as in the Bellevue System.

Hospital nursing schools have only made adequate library provisions during the past decade or so, as directors of the schools have realized the value of library facilities for their students. The nursing student needs academic training as well as practical preparation. This is one factor in the transition from graduates of hospital schools of nursing to college trained nurses.

In 1916 in an article in the *American Journal of Nursing*² the following formula for es-

tablishing a library was suggested: (1) try to squeeze some money for books from the school budget; (2) pick up duplicate copies from a medical library; (3) inveigle faculty and other people to lend books to the library; (4) call up the public library for assistance; and (5) have the school secretary carry the responsibilities and routines for keeping the resultant collection in order. This is a very haphazard way to operate a library of any kind and especially a library so necessary to the professional development of nursing students.

It is true that there has been progress in the field of nursing education since 1916, but it has been surprising to see the way some nursing school libraries had been operated—even as late as 1963. Today more schools of nursing are establishing libraries for their students. The schools are also setting aside budget funds to purchase reference books and materials as they are published. Hospital nursing schools are now also trying to staff their libraries with trained professional personnel. As many of the schools change to the baccalaureate program, the problem decreases because the colleges already have trained library personnel. There is still a place for the hospital school of nursing, and the need for good library facilities is just as great in these schools as is the need on the university campus.

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OVERSEAS REPORT

Special Libraries in Ghana?

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■ Activities in special libraries in Ghana are outlined. The efforts of a developing country to make available bibliographical information to its scientists, engineers and other research personnel are discussed.

IT MAY COME as a surprise to learn of special libraries in the region often referred to as Africa South of the Sahara. Not only can they be found, they actually exist in great numbers. As is often the case in regard to Africa one tends to underestimate the progress and sometimes encounters those who still imagine Africa to be an uncivilized country where wild animals and malaria threaten the white man's life, and where only the adventurous dare to travel.

After two tours of duty with Unesco in developing Africa I can testify to the contrary. As most of my time was spent in Ghana, I am able to speak with greater authority of that country than of others where I traveled or where I served only for a short time. The capitals and larger towns offer the visitor the same conveniences that their counterparts in the developed nations do. Only in the outskirts of them and in the villages does one find the typical Africa where palmfrond-covered huts offer shelter, and where the cooking and other activities take place outdoors. The temperatures are such that this is a necessity. They range from a maximum of 105°F, usually in March, to a nightly minimum of about 48°F in August, at the end of the rainy season. The

humidity, however, remains a fairly steady 98–100% except in January during the harmattan season, characterized by dry and dusty winds from the north.

Education

Ghana has been independent since 1957, and it is one of the most advanced countries in developing Africa. Formerly a British colony, it belongs to the Commonwealth, and English is the official language. The 1962 census showed a population of 6,726,815; and estimated population figures in 1966 were almost 8 million. In addition to primary schools, there are middle and secondary schools, teacher training colleges, universities, as well as technical and trade schools. Education is compulsory for all children under twelve years of age but is difficult to control because of many unregistered births.

Table 1. Student Enrollment, 1962/63

Primary schools	789,000
Middle schools	204,000
Secondary schools	23,000
Teacher training colleges	6,500
Technical colleges	3,000
Universities	2,000

In 1948 the British Council started a public library system which in 1950 was named the Ghana Library Board. The system has grown to a formidable size with a large modern library in Accra, several branches in the country, and bookmobiles to serve the villages. "Book Boxes" are prepared in the main branches for country-wide services to middle schools.

The three university libraries have good book stocks and are very well administered. The largest of them by far is the Balme Library of the University of Ghana (Legon) which has specialized library departments. Since 1965 the university also has a Department of Library Studies. Formerly, librarians were trained in a separate library school that was administered by the Ghana Library Board. The second largest library is that of the University of Science and Technology (Kumasi) followed by the library of the University College of Cape Coast. The latter university specializes in the training of science teachers. Most of the schools and universities rely heavily on foreign teaching staff, and it will be many years before a sufficient number of Africans are trained to fill the positions. Almost all libraries in Ghana, however, now have Ghanaian head librarians, and nearly all of the librarians and other library staff are African.

Special Libraries

While many special libraries in the United States and in other countries are found in industries, those of the developing countries in Africa are—for the most part—supporting scientific and social research in various institutions or are built around special collections. Industry is still in the process of

development, and industrial research is still a distant goal.

Other research, however, is carried out to a great extent in Ghana. The last decade especially has seen a great increase in research due to foreign aid in the form of funds, equipment and manpower. To increase and improve agricultural products such as oil palm, field trials and other experimental stations are maintained throughout the country. They, as well as the research institutes and units of the Ghana Academy of Sciences, and certain departments of ministries and universities are busily engaged in intensive research. Besides research in agriculture and tropical forestry, investigations are carried out in hydrobiology, tropical medicine, geology, physics and engineering, including building and road construction. African history, economics, business administration, health, child care and development, etc. are other areas of investigation. In the light of such a variety of research activities, supporting libraries have necessarily developed. They deserve to be noted, and I shall comment briefly on their activities. At least two of them have been in existence for over forty years.

Long established scientific research institutes and their libraries have become part of the Ghana Academy of Sciences which was established in 1959. At that time it was

Liberty Avenue, Accra

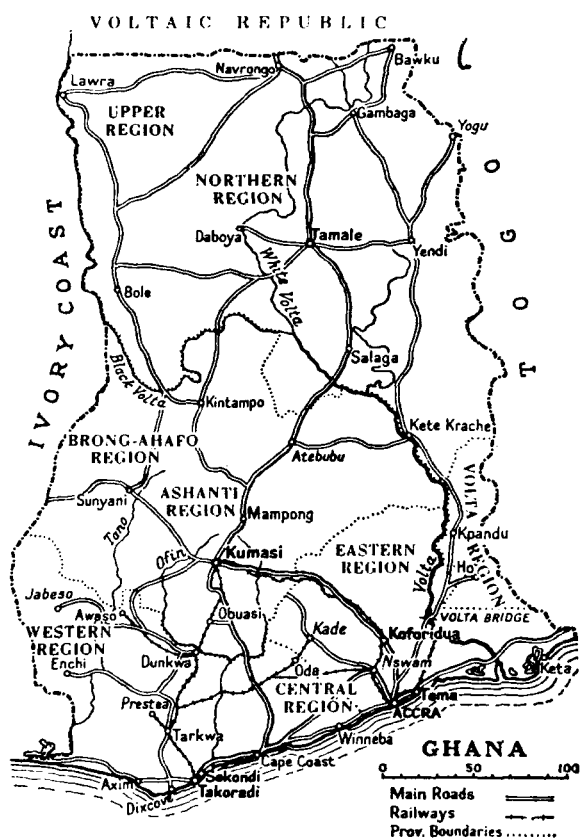


Ghana Information Services

called the Ghana Academy of Learning until it became the Ghana Research Council in 1961, and was renamed Ghana Academy of Sciences in 1963. One of the oldest institutes is the Cocoa Research Institute in Tafo which began as the Cocoa Research Station in 1937. Its name was changed to West African Cocoa Research Institute in 1944 when it developed a substation in Ibadan, Nigeria, that is still in existence. In 1962 the institute came under the administration of the Ghana Academy of Sciences. Besides research in the laboratories, field tests are performed in its large plantations, and the results are passed on to the cocoa farmers. Cocoa is the main export product of Ghana, the important crop covers millions of acres. Ghana is one of the largest cocoa producing countries in the world. The visits to Tafo are most interesting. Tours are conducted through the laboratories, the botany, plant breeding, and agronomy divisions, and to the areas where the fermentation and drying of the cocoa beans takes place. The institute's library is indeed very well organized, and the staff is very much involved in bibliographic assistance to the research teams as they seek to conquer cocoa pests and diseases.

The buildings presently occupied by the head office of the Ghana Academy of Sciences belonged originally to the Building and Road Research Institute which was then called the West African Building Institute. It was established in 1952. In 1959 it was moved to the attractive campus of the University of Science and Technology in Kumasi. The research staff of the institute has now the added advantage of having the university library collection at its disposal. However, the institute's library was already well developed before the move. Research includes investigations into the use of indigenous structural materials. Another goal is to improve the durability and appearance of mud huts in the villages.

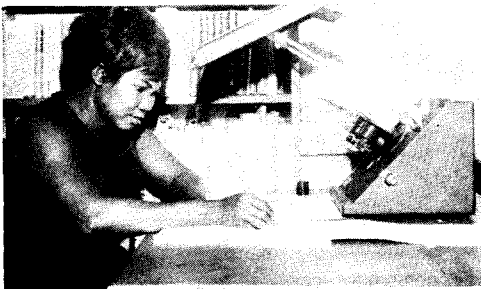
The plague, smallpox, yellow fever, trypanosomiasis, malaria, leprosy, etc. have been under investigation in Ghana since the beginning of the century. When the Korle Bu Hospital (Accra) was opened in 1924, medical research organizations stepped up their activities. The Academy's Institute of Health and Medical Research was established in 1960. It concerns itself—among others—



with communicable diseases, health education, child care, and Burkitt's Tumor (a cancer of the neck that afflicts children). A new library was established by this institute; thus there are three medical libraries on the hospital grounds. However, they are now in the process of merging.

The Soils Research Institute of the Academy of Sciences in Kumasi is another one of the old research organizations in Ghana, and its library is very prominent. The institute was established in 1945/46 and is deeply involved in studies of soil classification and soil fertility.

The Crops Research Institute in Kumasi came into existence in 1950. It is concerned with agronomy, plant breeding, entomology and plant pathology. Formerly, its research staff relied on the library of the Soils Research Institute which was on the same grounds. After the move of both institutes to



a new site near Kumasi in 1967, the Crops Research Institute has embarked on a vigorous library program of its own. In the near future a new periodical, the *Ghana Crop Science Journal*, will be issued by this institute. The editor, who is also temporarily in charge of the library, is Brian Wills.

The Forest Products Research Institute in Kumasi was established in 1960. Formerly, there was a branch in Takoradi which has recently joined its sister unit in Kumasi. Tropical forests cover 31,760 of Ghana's 92,100 square miles; and the institute carries out basic and applied research including silviculture, botany, ecology, pathology, wood structure, wood chemistry, pulp and paper, and timber mechanics. The book collections, reflecting the research, are now combined and will be organized and developed as soon as a librarian can be found.

In recent years, the Ghana Academy of Sciences established a number of other institutes and units of which most have started their libraries—or at least book collections. The Food Research Institute in Accra which investigates food processing methods, analyzes local foodstuffs, and makes economic and market surveys, would indeed be very handicapped without its library. The same is true for the Animal Research Institute which concerns itself with farm animal nutrition and helminthology. The Institute of Aquatic Biology is investigating minute biology in

**Ghana Academy of Sciences
Central Reference and Research Library**

B. Y. Boadi, the acting librarian, helps a reader to use the Coordinate index (KWIC).

A research scientist uses a microfilm reader.

Periodicals Section with readers at work; Mr. Opere-Sein, head of Documentation Section standing.

Mr. Antwi, a library assistant, records new periodicals.

sweet waters. The new dam in Akosombo which stores the waters of the Volta River for the large power station is providing much material for the investigation—and also some problems in the form of fast growing weeds. The charming director, Dr. Letitia E. Obeng has, among others, published a report on this particular problem. Another interesting unit of the Ghana Academy of Sciences is the Encyclopedia Africana Secretariat. It is the coordinating body of the research activities of the committees, representing 28 African countries that are involved in the project. Volume I is nearing completion; and Volume II will contain biographies of about 2,000 persons.

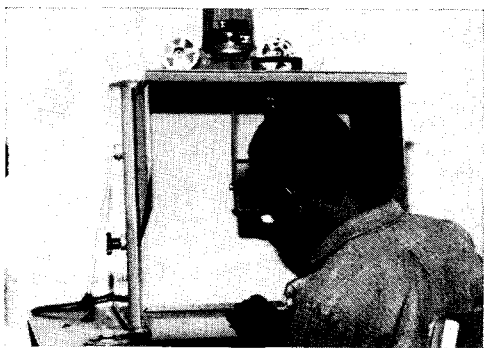
Other special libraries not connected with the Ghana Academy of Sciences include the Ministry of Agriculture Library which dates back to 1926. Mr. S. N. Tetteh, the librarian, is the editor of *Ghana Agriculture: 1890-1962*, a much used bibliography of which a supplement will be forthcoming. The Institute of Public Administration in Achimota was constructed and developed with the assistance of Unesco. This institute is training much needed administrative personnel. Its new library is already disadvantaged by lack of space. The George Padmore Research Library (Accra) is one of the most interesting special libraries. The Volta River Project Library in Akosombo was developed in connection with the building of the dam; and

the only commercial library of which I am aware is the National Investment Bank Library (Accra).

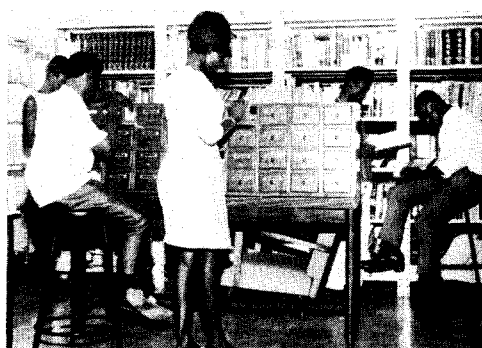
There are also specialized libraries of the United Nations and its agencies as well as that of the British Council. They are included in Table 2.

Annual reports and occasional publications are issued by all research institutes. The Agricultural Coordinator at the head office of the Ghana Academy of Sciences, Dr. P. O. Ripley, has compiled the *Index of Agricultural Research in Ghana, Including Forestry and Hydrobiology, Published Information on Agricultural Research in Ghana, Including Forestry and Fisheries, 1891-1966*. It consists of two parts and was published in 1968. (The somewhat cumbersome title may not be quite accurate.)

In the light of the existing number of institute libraries and other research institutes in the planning stages, the need for a central library became apparent. The Ghana Academy of Sciences, therefore, decided to establish a general science library at its head office to supplement the specialized collections in the libraries of the research institutes. It was also realized that the process of documenting scattered information and dissemination of recorded data were long overdue. Consequently, a librarian was hired in July 1964, and a special library expert was requested from Unesco.



George Padmore Research Library on African Affairs



Ghana Academy of Sciences Food Research Institute Library

The Assignment

During my assignment to the Ghana Academy of Sciences from November 1964 through April 1967, I worked closely with the librarian, John A. Villars. He had collected a large number of books prior to my arrival and had started an exchange system with academies, universities, and research institutions in other countries. He offered in exchange the following publications of the Ghana Academy of Sciences: *Ghana Journal of Science*, *Proceedings of the Ghana Academy of Sciences*, *The Academy Recorder*, and the annual reports of the various research institutes of the academy.

We named the new library "Central Reference and Research Library," organized the collection, cataloged the books and pamphlets, sorted out and indexed many of the numerous reports, set up a Uniterm index, and at the same time developed services unfamiliar to Ghana libraries such as retrospective literature searches, a semimonthly abstracts bulletin, *Literature Summary*, and translation services. We familiarized ourselves with the research performed in the institutes and brought to the attention of the personnel pertinent information and needed data. At a time when the flood of literature has become so voluminous that the important developments are buried in it, this kind of information flow is indispensable especially in a country so far away from easily available information sources. To my knowledge it is the only library in developing Africa which provides the services mentioned on a regular basis.

In 1966 we published the *Union List of Current Scientific Periodicals in Ghana Libraries* which includes our own 650 titles; and we started a union catalog of scientific and technical books. Both projects had previously been conceived by the Ghana Library Association. In 1967 we organized a seminar in the form of a Working Group of Ghana Librarians, where ways and means of cooperation and library recognition were discussed. This group is continuing under the Ghana Library Association which was formed in 1962, and which has now over one hundred members. Before that time it was the Ghana Division of the West African Library Association. Cooperation is somewhat hard to

achieve for various reasons. One is communication. It takes from 6-9 days for a letter to be delivered within the country, few librarians are able to afford a car, and public transportation is very limited. The telephone is often out of order for days. Also noticeable is a reluctance to share, to merge, or to centralize technical library services because prestige and status are not easily sacrificed.

Needless to say, we were extremely busy. There were enough problems: insufficient space and shelving, no copy equipment, a budget that seemed to exist only on paper, and long delays in receiving publications and supplies, aggravated by the continuous shortage of hard currency. Hundreds of thousands of volumes of periodicals in the academy libraries are unbound. Strong and frequent requests for a book bindery to be developed at the head office of the academy could not be entertained. Assistance of this kind from other countries is very difficult to obtain. A request for binding machinery to the Federal Republic of Germany is still pending. In February 1966, a political upheaval resulted in a setback and in a subsequent reorganization of the academy. Our progress was consequently slow and often frustrating. However, we carried on cheerfully and with determination; our impact on the scientific staff of our research institutes resulted in a flood of requests. As we were always grossly understaffed and without copy equipment the services, especially the supply of articles and translations, could not be provided as swiftly as we had wished. Yet, we were able to extend our services to research personnel of the universities, ministries and other organizations.

Eventually we acquired more room, some equipment, air conditioners, more shelves and more personnel. A scientist was transferred to our library who took over the abstracting and the literature searches; an assistant librarian was added, and another rapid typist. The tempo of our work increased from day to day. I had to leave in a frenzy of activities and with great regrets.

The reorganization of the academy is still taking place at the time of this writing. It will result in a division of the academy into two related organizations: the Academy of Science and Letters and the Council for Sci-

Table 2. Ghanaian Special Libraries

Organization*/Address/Librarian	Year Established	Notes
1. Ghana Academy of Sciences Central Reference and Research Library P.O. Box M32 Accra (Librarian: J. A. Villars)	1964	Coordinating and supplementing collections and services of the Academy's institute libraries. Services: Abstracts, literature searches, translations, general information.
2. Ghana Academy of Sciences Animal Research Institute Library P.O. Box 20 Achimota (Librarian: E. A. Sey)	1964	Good and extensive collection; serving research staff.
3. Ghana Academy of Sciences Aquatic Biology Institute Library P.O. Box 25 Accra (Librarian: None)	1965	Collection is growing fast; serving research group.
4. Ghana Academy of Sciences Building and Road Research Institute Library P.O. Box 40 Kumasi (Librarian: R. J. T. Nettey)	1952	Extensive collection including many reports; serving research personnel.
5. Ghana Academy of Sciences Cocoa Research Institute Library P.O. Box 8 Tafo (Librarian: E. K. Tetteh)	1937	Extensive and well organized collection; serving research departments.
6. Ghana Academy of Sciences Crops Research Institute Library P.O. Box 3785 Kumasi (Librarian: None)	1950	Collection in development.
7. Ghana Academy of Sciences Encyclopedia Africana Secretariat Library P.O. Box 2797 Accra (Librarian: None)	1962	Good reference collection supporting the work of the staff.
8. Ghana Academy of Sciences Food Research Institute Library P.O. Box M20 Accra (Librarian: G. Boakye)	1963	Collection is growing rapidly; serving research staff.
9. Ghana Academy of Sciences Forest Products Research Institute Library P.O. Box 63 Kumasi (Librarian: None)	1960	Considerable number of books, in need of organization.

* Since Oct. 15, 1968, a change is in effect and "Ghana Academy of Sciences" should be replaced by "Council for Scientific and Industrial Research" in the addresses shown above.

(continued)

Table 2. (contd.) Ghanaian Special Libraries

10. Ghana Academy of Sciences‡ Institute of Health and Medical Research Library P.O. Box 2824 Accra (Librarian: K. D. Agyeman)	1960	Especially noted for its large number of medical periodicals.
11. Ghana Academy of Sciences Soils Research Institute Library P.O. Box 3785 Kumasi (Librarian: E. Owusu-Sekyere)	1945/46	Extensive collection; serving research personnel.
12. British Council Library P.O. Box 771 Accra (Librarian: J. B. Nii-Moi)	1944	Specializes in English language, education and science.
13. Food and Agriculture Organization Regional Centre Library P.O. Box 1628 Accra (Librarian: A. Gidi)	1966	Collection of FAO publications, incldg. extensive material on tropical forestry.
14. George Padmore Research Library on African Affairs P.O. Box 2970 Accra (Librarian: A. N. De Heer)	1961	Excellent collection; serving scholars, students and interested individuals.
15. Institute of Public Administration Library P.O. Box 50 Achimota (Librarian: E. S. Asiedu)	1962/63	Good collection of books, periodicals and newspapers; serving faculty & students.
16. Medical Research Institute Library‡ P.O. Box M44 Accra (Librarian: Charles Tetteh)	1908	Large collection of medical books most of them dating back to the middle of the last century; serving hospital research staff.
17. Medical School Library‡ P.O. Box 4236 Accra (Librarian: Charles Tetteh)	1966	Serving doctors and medical students.
18. Ministry of Agriculture Library P.O. Box 299 Accra (Librarian: S. N. Tetteh)	1926	Excellent, extensive collection; serving agriculturists and veterinarians of the ministry.
19. National Investment Bank Library P.O. Box 3726 Accra (Librarian: W. G. Nkansah)	1963	Fine collection and services; serving bank personnel.
20. Scientific Library of the Geological Survey P.O. Box M80 Accra (Librarian: None)	1925	Good collection of books, periodicals and maps.

‡ Nos. 10, 16 and 17 merged recently; the address is now as shown in No. 17.

(continued)

Table 2. (contd.) Ghanaian Special Libraries

21. Unesco Regional Centre for Education in Africa Library P.O. Box 2739 Accra (Librarian: Mrs. S. Auroi)	1962	Serving teachers in Africa.
22. United Nations Information Centre Library P.O. Box 1423 Accra (Librarian: None)	1963	Recent publications of the UN are stocked and available to the public. (Depository for UN and UN agencies publications is the Balme Library, University of Ghana.)
23. Volta River Project Library P.O. Box M77 Akosombo (Librarian: T. W. Cochrane)	1961	Serving engineers and personnel connected with the dam.

entific Research.* The Central Reference and Research Library will continue to operate under the council.

After a short assignment to the Kenya Polytechnic in Nairobi, I stopped for a few days in Accra on my way home at the end of November 1967. It was not only a very touching reunion, but it was also very gratifying to see the efforts of the library staff to carry on with the work under trying circumstances. The budget, which had always been extremely slim, has reached an absolute minimum. Even though the requests have increased substantially, no more personnel can be added until the reorganization is completed and funds made available.

In order to observe library developments in other countries Mr. Villars, the librarian of the Academy of Sciences, is now in the United States and England as the recipient of a Unesco fellowship. He will be returning to Ghana with many new ideas and it is hoped that his plans and my recommendations may become a reality very soon. Mr. B. Y. Boadi, the assistant librarian, in charge during Mr. Villars absence and Mr. Opere-Sem, who is the head of the Abstracting Department, together with other enthusiastic staff members, must cope with the increasing work to the best of their ability.

Much remains to be done. It should only be a matter of time now, however, until the recommendations of the well known, late

* The change occurred on Oct. 15, 1968.

physicist, Sir John Cockcroft, and his committee will be implemented. Their recommendations are laid out in the *1967 Report of the Committee of Experts to Advise on the Future of the Ghana Academy of Sciences*; these recommendations were accepted by the National Liberation Council. Sir John and his committee carefully scrutinized our work and services and decided that

"The Academy of Sciences has built up sizable and useful library and documentation facilities and these are growing steadily. They should not be disbanded but should be retained as common services to research units/institutes and also to the Learned Society. . . ."

These recommendations should help to dispel the doubts of the few who considered the project an unnecessary expense in a developing country.

Perhaps on account of the hard work that went into the project and possibly because of the circumstantial difficulties, the many setbacks, and the struggle for its survival, this project is still very dear to me. The support, cordiality, and warmth of the Ghanaians with whom I had the privilege and pleasure to associate over the years has resulted in—I hope—lasting friendships. I can truly say that I have enjoyed my Unesco assignments very much, and the Ghana assignment will indeed remain an outstanding experience in my life.



Conclusion

If I have succeeded in bringing Africa a bit closer by relating my special library experiences in Ghana to the profession I shall be happy. The accomplishments of the librarians are noteworthy, their efforts admirable, and the problems considerable.

I am convinced that special libraries will increase as the African countries develop, and that each one will become a truly active part of its organization, supported by a well-run information center that will include mechanized storage and retrieval systems as soon as this is feasible. I also hope that the directors of library schools in Africa will become aware of the increasing number of special libraries, and that courses will be geared to their needs. Meanwhile, more scholarships should be provided for studies abroad, so that a more diversified training for these librarians can be assured.

Received for review June 25, 1968. Accepted November 19, 1968. Mrs. Fischer is now science subject specialist at the library of the California State College, Fullerton.

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* Note: Nos. 3, 4, 5 as well as the Annual Reports of the various research institutes of the Ghana Academy of Sciences are available on exchange through the Central Reference and Research Library, Ghana Academy of Sciences, P.O. Box M32, Accra, Ghana.

Library Technicians—The Big Controversy

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■ Within recent years the more important changes in the library profession have occurred as libraries have attempted to meet the vast expanding needs and interests of people of all ages. Simultaneously a critical shortage of qualified personnel has become evident throughout the country. As a partial answer to the critical shortage of librarians the use of trained subprofessionals—commonly referred to as library technicians or aides—to work under the supervision of professional librarians has been proposed. A realistic appraisal of the manpower shortage

indicates that trained library technicians will free professional librarians from routine duties, alleviate the desperate shortage of librarians, and, in general, elevate the library profession. Typical of the growing number of library technician programs is the Sauk Valley College program which has been offered for one year. This program, similar to many others, is an attempt to produce para-professionals who will work under the supervision of professional librarians and thus release the professionals for duties requiring graduate training.

THE library profession is in a state of flux. Librarians are demanding better salaries and facilities, larger budgets with which to work, clearer definitions of professional and nonprofessional duties, more action from their professional associations, improved library courses in graduate schools, etc. More prominently than these occurrences, however, loom the many problems created by the critical manpower shortage. Probably the understatement of the year would be to say that our ALA accredited schools simply are not producing enough graduates to fill the vacancies in our libraries.

Education for Librarianship

While it is generally accepted that education for librarianship is long overdue for a basic reorganization, there are many in the library profession who feel that only through

the implementation of programs to train library technicians—or library aides, as they are commonly called—will be able to offer at least a partial solution to our manpower problem. Paradoxically, library technicians have not been well received by those who stand to profit the most from their existence—professional librarians who need their services desperately. At a recent convention for junior college librarians, for example, the writer of this article was met with dozens of seemingly horrified faces when he casually used the term “library technician.” On the other hand, such incidents should not be astonishing. Library literature abounds with articles pointing out such dangers as the fact that professional librarians may be replaced—put out of a job—if library technician programs produce competently trained graduates capable of accomplishing tasks which

normally occupy much of a librarian's time. Incredulously, within the past year one periodical considered by many librarians to be the most highly reputable magazine in the library world featured an article in which the author unabashedly referred to institutions which offer library technician programs as "peddlers of educational snake oil."¹

Thus at the present time librarians appear to be caught in a crossfire. On the one side lies a gigantic need for librarians, and on the other, traditional library education. Consequently, many are becoming less skeptical of new programs for the recruitment of library personnel. Numerous authorities in the library profession have repeatedly stated that it is unrealistic to expect a person to have a bachelor's degree with an undergraduate major in almost anything other than library science followed by a master's degree from an ALA accredited library school before he may be called a librarian. As one individual has stated, "It is also becoming painfully clear that, like it or not, some form of undergraduate education will come about."²

Likewise, from the 1967 ALA Convention in San Francisco comes the following:³ "Two of the stepchildren of the educational family—technician and undergraduate programs—evoked considerable interest, and appear to be recognized as here to stay." So, it may well be that the traditional concept of education for librarianship is changing. One professional librarian has made this point clear by stating:⁴

"The phase of emotionalism in librarianship, with its tendency to reject in advance every program below that of the one-year library school as an act of 'watering down,' 'diluting,' or 'prostituting' our profession, is over."

Although this statement is debatable, most librarians would probably agree that, like it or not, they are being forced to take a close look at undergraduate programs showing promise of alleviating the manpower shortage. Symbolic of this fact is a recently published report representing the official policy of both the Interdivisional Ad Hoc Committee of the Library Education Division and

the Library Administration Division. Both divisions were able to agree upon some basic definitions of the subprofessional or technician class of library employees and to suggest classification specifications, including statements of typical duties to accompany the definitions.⁵ Furthermore, the report concludes:

Greater use of a middle-level service of library employees between clerical and professional is recommended in view of demands for library service and growth of library activities. In view of the present and anticipated employment market, it is essential to assign the limited number of professional librarians only to duties that require full professional education.

The Manpower Shortage

The importance of junior colleges developing library technology programs should not be slighted. Careful consideration must be given to feasible means of easing the critical manpower shortage in librarianship today. In describing the present manpower situation, Wasserman and Bundy⁶ conclude:

The library and information fields are very rightly concerned with their manpower problems for, at present, to say nothing of the future, at every level and in every type of library and information agency there appear to be insufficient numbers of people competent to perform the tasks required.

Accordingly, in discussing library education and the shortage of librarians, Summers² has said:

No one who is seriously concerned would deny that there is a critical shortage of professionally trained librarians. Whether the magnitude of the shortage is 10,000 or 100,000 is largely academic because the fact is that we are not producing more than 2500 graduates annually with a fifth-year degree, including the non-ALA-accredited schools.

The *Wall Street Journal* stated recently:⁷

The New York Public Library, recruiting at 38 colleges this Spring, has a record 106 vacancies. Chicago needs 50 librarians, Detroit 25. Columbia University "literally has to comb the country" for librarians.

When it comes to a realistic appraisal of the manpower shortage in libraries, the debate about the training of subprofessional library personnel loses its momentum. The fact that competently trained para-professionals would provide for maximum use of professionals and thus be an essential step toward meeting the critical shortage of qualified librarians is easily understood.

The Need for Library Technicians

Obviously no one has an answer to the manpower shortage acceptable to all librarians. On the other hand, freeing librarians from clerical work and classifying positions so as to limit the professional librarian to professional tasks deserve more than casual mention. Perhaps a new middle-level group of competent assistants or library technicians plus better use of our too few fully trained librarians is the solution for which so many are seeking. It is this writer's opinion that by releasing professional people for tasks requiring graduate training, library technicians can substantially help to alleviate the desperate shortage of librarians. After studying library literature which teems with articles deploring the wasteful employment of professional staff to perform subprofessional duties as well as article after article emphasizing the critical manpower shortage in librarianship, one finds it difficult indeed to feel otherwise. This writer is in complete agreement with the following opinion⁸ expressed in answer to an article previously cited in which the author, Samuel Sass,¹ voiced the fear that an encroachment on the professional status of the librarian was occurring and that library technicians would be used to fill positions where graduate librarians should be employed:

Mr. Sass is concerned lest technicians and others similarly unprepared fill positions in libraries which should be held by graduate librarians. I do not share his fear. If my graduate training has value, then I should

be able to perform in a manner which cannot be matched by an individual lacking my background and training. If on the other hand, my job is one which can be performed by most graduates of two-year programs, then I should not be doing it at all.

Rather than constituting a danger to librarianship, the training of library technicians appears to be freeing professionals from performing routine duties, alleviating the desperate shortage of librarians, and, in general, elevating the profession.

The Growth of Library Technology Programs

It seems safe to say without danger of much dispute that library technician programs are mushrooming throughout the country. Considered to be the most comprehensive research literature covering the training of library technicians, the Martinson study¹² indicated that, in the beginning, programs were developed to meet the local needs in various parts of the country with little or no knowledge of other programs unless they were in the immediate vicinity. With the upsurge of national interest in library technicians, however, programs to train them are receiving wide publicity, and general outlines for establishing new programs are evolving. Guidelines are currently being developed which will serve not only as general guidance for institutions that are planning programs but also as standards for evaluating and strengthening programs.⁵

When Martinson completed his survey, he was surprised to learn that there were 26 library technician programs operating in the United States by the end of 1965. At the outset, Martinson knew of only eight and estimated the total not to exceed fifteen.⁹ Obviously the number of programs has increased rapidly since that time. According to recent statistics, there are now 90 or more junior colleges either offering or about to offer courses in library technology.¹⁰

Since junior colleges are assuming major responsibility for vocational-technical education, they will be called upon more and more to help provide library training programs. Almost all of the institutions now offering or contemplating the offering of library technology programs are junior colleges.

Typical of the two-year programs designed to develop occupational competency for a middle group of employees between the professional and clerical levels is the library technology program offered by Sauk Valley College (a new junior college in its third year of operation) located at Dixon, Illinois.

Sauk Valley's Program

Basically a two-year terminal program leading to a degree of Associate in Applied Science, the library technology program at Sauk Valley College is an earnest attempt to provide the local communities with para-professionals to assist professionally trained librarians by performing duties that do not require full professional knowledge but which at the same time require training that library clerks seldom have.

When it was decided to initiate a library technology program at Sauk Valley College, a Library Technology Advisory Committee composed of public, school, and special librarians as well as library and school administrators was formed not only to help in establishing criteria for courses to be offered in the two-year program but also to provide a liaison between the college and library employers. Meeting periodically throughout the formative stage of the program, this committee has been instrumental in the development of the balanced sequence of courses offered. Without exception, courses composing the Sauk Valley College library technology program have received positive recommendation from this committee.

In order to determine the employment possibilities and actual need for graduates of the program, the author conducted a survey of the need for library technicians in the area served by Sauk Valley College. Questionnaires accompanied by a descriptive brochure containing a definition of the term "library technician" were submitted to schools, hospitals, public libraries, and industries located in the area served by Sauk Valley College but not within the district of any other junior college. Only thirteen industries—those considered to be the major employers in the area—were selected. Otherwise, the study was as inclusive as possible. A total of 97 questionnaires were mailed in all, and a surprisingly large number (92) of the completed

questionnaires were returned. Careful study of the returned questionnaires revealed the following:

1) Seventy per cent of the respondents felt that there will be positions available locally in industrial, public, or school libraries for graduates of the program for library technicians now being offered at Sauk Valley College.

2) Seventy-six per cent of the respondents felt that there is a definite need for junior college training in undergraduate library technician programs.

3) Sixty-four per cent of the respondents indicated that they would recruit library technician graduates from Sauk Valley College if positions were available on their library staff.

4) From 35 to 45 library technicians could be employed in the area served by Sauk Valley College at the present time.

Largely because of the effort put forth by the Library Technology Advisory Committee and the obvious need indicated by the survey for the library technology program in the Sauk Valley College area, a greater impetus for the establishment of the program was still to come. This was recognition and approval of the program by the Vocational and Technical Education Division of the Board of Vocational Education and Rehabilitation.

The first courses in the library technology program at Sauk Valley College began with the fall semester of 1967. Some of the courses were offered in the evening to enable persons employed in full-time positions to enroll. Consequently, housewives, school teachers, employees in school and public libraries, and full-time students became the nucleus of the enrollees. With 44 enrolled students, it was apparent that the new program had achieved a successful beginning. Present evaluation of the program by students, Sauk Valley College officials, the Advisory Committee, and potential employers in the area all indicate a great deal of enthusiasm and satisfaction with the program.

Summary

A review of library literature indicates that professional librarians are often employed to do routine work that could be

done by library technicians. In view of the critical manpower shortage, it seems only reasonable that two-year library technician programs should be established to provide a source of qualified personnel to work under the supervision of professionally trained librarians and to release the limited number of professional librarians to perform work requiring their background and knowledge.

The library technology program now being offered at Sauk Valley College is a partial answer to the critical shortage of librarians in the local communities served by Sauk

Valley College. Although the program will not increase the number of professional librarians in the area, it will produce para-professionals to work under the supervision of professional librarians and thus relieve them from performing routines, techniques, and procedures not requiring full professional knowledge. By releasing professional librarians for tasks requiring graduate training, library technicians can help to alleviate the desperate shortage of librarians not only in the Sauk Valley College area but throughout the country.

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Received for review October 1, 1968. Accepted December 16, 1968. Mr. Steele is now director of the Educational Resources Center of Rock Valley College, a community college serving the Winnebago and Boone County area. This article describes the first library technology program in downstate Illinois which was developed while the author was assistant director for Instructional Materials and Library Services at Sauk Valley College, Dixon, Illinois.

International Federation for Documentation

*34th General Assembly, FID, The Hague
December 2-6, 1968*

EXCEPT for current events in late August 1968 centering on Prague, this report would be headed "Moscow, September 9-18." As it was, the Council of the International Federation for Documentation (FID) cancelled the Moscow meeting after 700 registrations had been received including 400 foreigners from 40 countries, and over 100 papers had been accepted and received by the Organizing Committee under Prof. A. I. Mikhailov, VINITI. Statutes required the election of new officers and adoption of the budget prior to the end of 1968; accordingly, a substitute meeting, largely administrative in nature, was held at The Hague and was attended by representatives of 35 countries.

W. Kenneth Lowry, Director of Technical Libraries, Bell Telephone Laboratories, Murray Hill, N. J., retired as FID President after a four-year term that included several organizational changes and revitalization in this organization of non-governmental bodies interested in the advancement of documentation, particularly in the sciences.

Ralph McBurney, National Research Council of Canada, was elevated from Chairman of the FID Committee on Information for Industry to the FID presidency. The new president characterizes himself as a "user-oriented person," fully convinced of the need to cooperate internationally on the practical utilization of information resources of all descriptions.

Three new countries were admitted to FID: Colombia, Nigeria and the German Democratic Republic, making a total of 46 countries with national memberships. The USSR delegation read a resolution to the effect that FID had permitted political considerations to intrude on the planning for the Moscow meeting—while in fact FID was non-political in nature—and expressed the hope that future Organizing Committees would not be interfered with on such politically-inspired grounds as was true in 1968. The Democratic Peoples Republic of Korea likewise introduced a resolution calling atten-

tion to the refusal of the 1967 host country (Japan) to admit their delegates to the previous General Assembly, and that this too was contrary to the non-political nature of FID. The invitation of Argentina to hold the 35th General Assembly in Buenos Aires in September 1970 was accepted, and the suggested theme of "The User in Documentation" is to be considered by the FID Council.

Much of the technical work in FID is done through its Study Committees. Three such committees met at the same time as the General Assembly. Malcolm Rigby, Environmental Sciences Administration, Washington, D. C., attended the sessions of the Central Classification Committee as a committee member and subcommittee chairman. Bart Holm, DuPont, Wilmington, Del. was at the Information for Industry Committee meetings as a committee member, and joined Rigby in being an Alternate to the General Assembly. The writer attended the Developing Countries Committee meetings, in addition to serving as the U.S. Delegate to the General Assembly.

The unforgettable social event was a traditional Dutch "St. Nicholas Party" where the ancestor of our Santa Claus arrived in the scarlet robes and mitre of a bishop. His two Moorish servants brought presents for all. The Dutch documentation organization, NIDER, had recommended us to St. Nicholas, and testified to our good intentions.

Eugene B. Jackson
U.S. Delegate to the
General Assembly, FID

International Business Machines Corporation
Armonk, New York

Received December 20, 1968

EDITOR'S NOTE: The SLA Representative to FID is Mrs. Helen Redman, Los Alamos Scientific Laboratory, Los Alamos, New Mexico.

New Information Facility in Dallas

David L. Clifton

Collins Radio Company, Dallas, Texas 75207

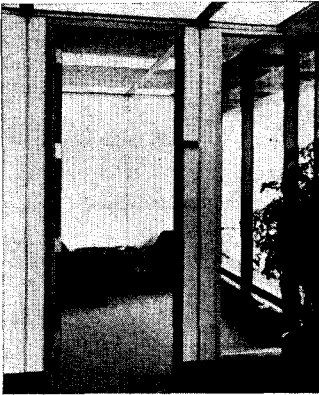


Figure 1. Private Reading Room. Walls are vinyl covered gypsum board to ensure quality soundproofing of the modular units.



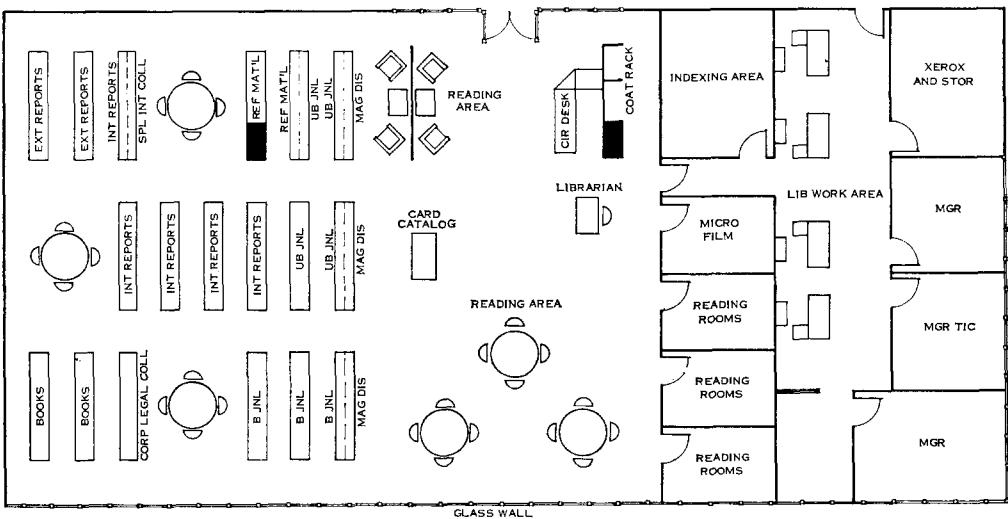
Figure 2. Reading Area and Stack Area. Library furniture by Jens Risom Designs.

THE new Technical Information Center (TIC) of Collins Radio Company is located on the ground floor of the company's new four-story corporate office building. Study facilities were designed to provide privacy from the open library areas, but each of the four private reading rooms is sufficiently large to accommodate several persons.

The best means of serving all company employees was the basic idea for the design of the center. The Dallas TIC has approximately 3,000 books, 7,000 external technical reports, and 30,000 Collins publications. The center subscribes to more than 260 periodicals; and about 100 new books are added each month.

In addition to the technical library, TIC also includes other functions and services.

Figure 3. Floor Plan. Spaciousness has been emphasized throughout the entire area of 6,250 square feet.



One of the most popular services is the "Current Awareness Program" for the entire company. This program is based on two weekly bulletins:

1. *Current Awareness Bulletin*. Information specialists scan 107 periodicals and prepare abstracts of articles pertinent to the company's interests. (A selected group of journals is also circulated.)
2. *Internal Documentation Announcement*. Internal company documents such as engineering reports, company procedures, equipment specifications, instructional materials, technical data sheets, etc. are included.

Company documents are indexed by use of conventional indexing entries and also by Collins Equipment Part Numbers and by Collins Equipment Type Numbers.

Literature searching services are available on any subject relating to company activities. After a requester has defined his needs and applications, TIC personnel complete a search in the books, periodicals and reports in the Dallas center. Any information that pertains to the search question is marked and laid aside for review by the requester. Additional material is obtained from other sources.

The microfilm room is equipped with four units: Atlantic F66 Microfilm Reader, IBM Microviewer, 3M Microfilm Reader/Printer Filmac 400 (16mm cartridge unit), and 3M Microfilm Reader/Printer Filmac 400 (35mm film).

In addition to the new Technical Information Center in Dallas, Collins Radio also maintains TIC's in: Cedar Rapids, Iowa; Newport Beach, California; and Toronto, Ontario, Canada.

Received for review August 28, 1968. Accepted November 21, 1968.

Mr. Clifton is manager of the Technical Information Center, Collins Radio Company, Dallas, Texas. He is also vice chairman of the Industrial Information Service, Southern Methodist University.

Who's Who in Library Service

The fifth edition, sponsored by the Council of National Library Associations, is scheduled for publication in Mar 1970. Questionnaires will be mailed in Jan and Feb 1969 and must be returned by Apr 1, 1969. Eligibility for inclusion will be the same as for the fourth edition: "Active members of the library profession, archivists, or information scientists associated with all types of libraries in the U.S. and Canada. The norm of professional education is the bachelor's degree together with the bachelor's or master's degree from a library school received prior to Jul 1, 1969. Five years of recognized and progressive professional experience may be substituted by those who do not possess one or both of these formal educational requirements."

Eligible readers of this notice who have not received a questionnaire by Mar 1, 1969 should request a form from: Lee Ash, Editor, The Shoe String Press, 995 Sherman Ave., Hamden, Conn. 06514.



LTP Reports to SLA

Marjorie E. Weissman

Library Technology Program, American Library Association, Chicago 60611

A REPORT by the United States Testing Company evaluating several 16mm motion picture sound projectors in the \$500-\$900 price range has been received by LTP. Editorial work has begun and the edited report will be published in *Library Technology Reports*.

An evaluation by William R. Hawken Associates of the "Superior" Model A-B microfilm reader, manufactured by Library Microforms and Materials Co., appeared in the November issue of *LTR*. Another evaluation, currently being conducted by Hawken Associates for LTP, is of the standard and coin-operated models of the Xerox 720 photocopier. Results will be published early in 1969.

Bracket-type steel shelving units, manufactured by the Brunswick Corporation, Kalamazoo, Michigan, are now being tested for LTP by Buyers Laboratory Inc. An evaluation of Estey's Vistabase steel shelving will be made just as soon as sample units can be purchased. Both evaluations will be published in *Library Technology Reports*.

An agreement has been signed between LTP and the National Reprographic Centre for documentation (NRCd), Hertfordshire, England, for the exchange and republication on a one-to-one basis of reprographic equipment test reports. NRCd will test primarily European equipment; LTP contractors will continue to test primarily American equipment. In order that the reports of LTP and NRCd will be somewhat comparable in their general approach, work on test programs and reports will be coordinated between the two organizations. The agreement is for one year, with the intention that it will be renewed.

Nearly 3,000 copies of the *Library Technology Program 9th Annual Report for 1967-1968* have already been mailed. A highlight of the report is the information concerning the increase in self-support that LTP has achieved over the past two years. A sum-

mary of the progress of LTP projects is also offered. Readers who wish to have a copy should write to LTP. There is no charge.

One thousand subscriptions to *Library Technology Reports* are now current, according to Robert Shaw, editor. The figure includes multiple subscriptions where more than one copy of each issue of *LTR* goes to the same address.

Richard W. Luce, assistant director of LTP, resigned in December to accept a post with the Montana State University Library. No successor has been named.

SLA's Special Representative to the ALA/LTP Advisory Committee is Don T. Ho, supervisor of Technical Information Libraries, Bell Telephone Laboratories, Holmdel, New Jersey.

Seattle Area Information

A ONE-DAY Conference on Information Sources in the Seattle Area sponsored by SLA's Pacific Northwest Chapter was held on October 22, 1968. Forty people attended the conference, designed for employees of industry who are assigned the responsibility of securing information or literature and who are frequently unaware of the wealth of materials in libraries and other agencies in the area. Conference co-chairmen were Edith Fry and Benjamin F. Page. Members of the Chapter were among the instructors: Area Information Sources (Mrs. Charlotte Beatty), General Information Sources (Phoebe Harris), Special Reference Tools (Mrs. Betty Sunde and Mrs. Jean Boucher), and Circulation Policies (Edith Fry and William Nash).

Benjamin F. Page
Chairman, Education Committee
Pacific Northwest Chapter

Institute for Professional Social Welfare Librarians

WITH his expression—the demand for “instant librarianship”—Dr. Guy Garrison, dean of the Library School at Drexel Institute of Technology, in his welcoming speech presupposed one of the major reasons for organizing the Institute for Social Welfare Librarians (Nov 20–22, 1968). Dr. John S. Morgan, dean of the School of Social Work of the University of Pennsylvania, with his cosmopolitan background welcomed the registrants with his knowledge of the obvious need for social welfare librarians and with his Baconian philosophies.

The number of participants (ten) was only half that expected. Although this small number had one disadvantage, it also had great advantages. Concurrent workshops had been planned for:

- 1) Libraries of Public and Private Social Work Agencies, and
- 2) Libraries of Schools of Social Work.

The two workshops were to be taught by the institute's co-directors: Madeleine Douet (director of reference services, United Community Funds and Councils of America, New York) and Evelyn Butler (librarian, The School of Social Work, University of Pennsylvania, Philadelphia). Because this first institute had a small attendance, all participants stayed together and learned the methods of both types of libraries. The greatest advantage of the small enrollment was that everyone could participate more freely.

The course content is self-explanatory from the announcement flyer. One interesting bit of structural history is that the Pennsylvania School of Social Work was founded by the Community Chests of Philadelphia (now known as United Funds of Philadelphia) and was the training arm of that agency for 25 years before becoming affiliated with the University of Philadelphia in 1936.

Perhaps circulation methods differed most between the two types of libraries. Both types of libraries emphasized the acquisition of, and the need for, the ephemeral materials.

Joe R. Hoffer, executive secretary of the National Conference on Social Welfare dis-

cussed what its library had accomplished with descriptors and Uniterms. Mr. Hoffer pointed out the need for a thesaurus of social work terminology.

In the architectural session Roy Larson outlined the building program of the Social Sciences Center; the School of Social Work is to occupy one of the four buildings. He then described more specifically the design and construction of the library of the School of Social Work. The last half of his talk was based upon questions submitted by the participants the day before. It was, in effect, a “free clinic.”

Institute members were asked to evaluate the institute. The immediate consensus was that not only had they gotten what they came for, but “more than their money's worth.” We could not give “instant librarianship” in three days, but we could give instruction and background to those registrants who found themselves as the heads of social welfare libraries without previous experience or training for such work. As a learning experience the institute was excellent for both the participants and the co-directors.

Evelyn Butler
Co-Director, Institute for Social Welfare Librarians

The School of Social Work
University of Pennsylvania
Philadelphia 19104

Received December 5, 1968

Course Outline for Social Welfare Institute

- I. Organization of a Social Welfare Library
 - A. Administrative structure
 1. Relationship to boards and committees
 2. Relationship to administration
 - B. Operational structure
 1. Relationship to staff (general)
 2. Relationship to staff (social work library)
- II. Library Staff Structure
 1. Qualifications
 2. Categories and numbers needed
 3. Job description and performance

III. Organization of Materials

1. Books—Methods
2. Pamphlets—Methods
3. Periodicals—Methods

IV. Workshops

- A. Libraries of Social Work Agencies, Public and Private
- B. Libraries of Schools of Social Work

V. Selection and Acquisition of Materials in Social Welfare Field

- A. Basic Review of the history of social work literature
 1. Literature prior to 1860
 2. Literature from 1860-1880
 3. Literature from 1880-1909
 4. Literature from 1909-1935
 5. Literature from 1935 to date
- B. Sources of acquisitions
 1. Book dealers
 2. Secondhand catalogs in social science
 3. Gifts
 4. U.S. Book Exchange
 5. Government—
Social Work agencies, as HEW
County, city reports and periodicals
State reports and periodicals

Federal reports and periodicals

6. Voluntary agencies
7. Mailing lists

VI. Retrieval of Information

- A. Circulation—types of materials
 1. Reserve books, pamphlets, and periodicals
 2. Non-reserve books, pamphlets, and periodicals
- B. Circulation—methods
 1. Interlibrary loans
 2. Special services to clientele
- C. References
 1. Skills
 2. Sources, such as *Encyclopedia of Social Work, International Bibliography on Crime and Delinquency*, etc.
 3. Bibliographies

D. Special forms of information storage

E. Special forms of information retrieval

VII. Architecture for Social Welfare Libraries

- A. Remodeling of old locations for libraries
- B. Remodeling of old libraries
- C. New libraries

Council on Social Work Education

Two special meetings on social work libraries and an exhibit of interest to social welfare librarians will be held at the 1969 Annual Program Meeting of the Council on Social Work Education* (CSWE), to be held January 20-24 at the Statler Hilton Hotel in Cleveland.

Both sessions are innovations, and are the result of a major increase in the number of graduate schools of social work and undergraduate programs in social welfare, the rapidly expanding volume of written repositories of knowledge, and the increasing use of modern technology in social work education. These developments make it essential that careful attention be given to the most effective use of materials. They make it evident, as well, that more than ever before librarians are an integral part of the faculty.

One session, "The Library and Social Work

Education," has been planned to allow full discussion of mutual concerns by librarians and others with interest in this area. The speakers, Mrs. Martha Stewart, librarian of Case Western Reserve University's School of Applied Social Sciences, and Mrs. Grace Birmingham of the Columbia University School of Social Work Library, will make brief presentations on the librarian's role in social work education. Their presentations will raise pertinent questions for discussion. Marguerite Pohek, CSWE Consultant on Faculty and Teaching, will serve as discussion leader. This session has been scheduled for 2-4 p.m. Tuesday, January 21.

The second session at 2 p.m. Wednesday, January 22 will concern guidelines and criteria for building a social work library. Dean Walter Beattie, Jr., of the Syracuse University School of Social Work and a librarian, Lucille Bailey of the Hunter College School of Social Work, will discuss pertinent use of a social work library.

* Council on Social Work Education, 345 East 46th St., New York 10017

PUBS

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- Comparative Education through the Literature: A Bibliographic Guide.** Thelma Bristow and Brian Holmes. Hamden, Conn., Archon Bks., London, Butterworths, 1968. ix, 181 p. \$6.75.
- Fifty Years of Petroleum Technology: A Guide to the Scientific and Technical Publications of the Institute of Petroleum 1914-1964.** George Sell, comp. London, Inst. of Petroleum, 1968. v, 90p. 30s. (Overseas Sales, Elsevier Publ. Co.)
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- Sources for the History of the Science of Steel 1532-1786.** Cyril Stanley Smith, ed. Cambridge, Mass., M.I.T. Press, 1968. xv, 357p. \$12. (Soc. for the History of Technology Monograph Ser. no. 4)

CATALOGING & CLASSIFICATION

- Classification for Information Retrieval,** Papers Presented at an Intensive Course Held in September 1967 at the School of Librarianship, Liverpool College of Commerce. K. G. B. Bakewell, ed. Hamden, Conn., Archon Bks., London, Clive Bingley, 1968. 100p. \$4.50.
- A Classification of the Performing Arts.** Antony Croghan. London, A. Croghan, 17 Coburgh Mansions, Handel St., 1968. 120p. pap. offset. £2.
- Organising the Arts.** Peter F. Broxis. Hamden, Conn., Archon Books, 1968. 132p. \$4.50.
- Sample Cataloging Forms: Illustrations of Solutions to Problems in Descriptive Cataloging.** 2d rev. ed. with a Section on Comparison of the Anglo-American Cataloging Rules and the ALA Cataloging Rules. Robert B. Slocum and Lois

Hacker. Metuchen, N. J., Scarecrow Press, 1968. 205p. \$7.50.

EDUCATION

- Library Education: An International Survey.** Larry Earl Bone, ed. Urbana, Ill., Univ. of Ill. Graduate School of Libr. Sci., 1968. xiii, 388p. (Distributed by Illini Union Bookstore).

LIBRARY & INFORMATION PRACTICE

- Annual Report of the Librarian of Congress for the Fiscal Year Ending June 30, 1967.** Washington, D. C., Libr. of Congress, 1968. xiv, 198p. \$3 (for sale by Supt. Doc.); free to libraries.
- Case Studies in Systems Analysis in a University Library.** Barton R. Burkhalter, ed. Metuchen, N. J., Scarecrow Press, 1968. 186p. \$7.50.
- The Latin American Cooperative Acquisitions Program . . . an Imaginative Venture.** M. J. Savary. New York, Hafner Publ. Co., 1968. xiv, 144p. \$6.50.
- H. P. Luhn, Pioneer of Information Science: Selected Works.** Claire K. Schultz, ed. New York, Spartan Bks, 1968. 320p. \$18.75.
- The Maturity of Librarianship as a Profession.** Dale Eugene Shaffer. Metuchen, N. J., Scarecrow Press, 1968. x, 166p. \$5.
- Roads to Research: Distinguished Library Collections of the Southeast.** Thomas H. English. Athens, Ga., Univ. of Ga. Press, 1968. xiii, 116p. pap. \$1.95.
- Simulation Games in Learning.** Sarane S. Boock and E. O. Schild, eds. Beverly Hills, Calif., Sage Publications, 1968. 279p. \$8.50.

PERIODICALS

- Directory of Serials in Pure and Applied Science and Economics Published in Israel,** 2d ed. Tel Aviv, Israel, Natl. Council for Res. & Dev., Center of Sci. & Technol. Info. 1968. xvi, 189p. \$8. (Guides to Sources of Info. Ser., Directory, no. 3)
- Scandinavian Public Library Quarterly.** Valby, Denmark, Bibliotekscentralen, Mosedalvej 11. v.1+ (1967+). Annual Subscription: \$7, U.S. & Canada. (U.S. & Canada, Stechert-Hafner, N. Y.)
- World Index of Scientific Translations.** Delft, The Netherlands, European Translations Centre, 101 Doelenstraat. v.1+ (1967+) Annual Subscription: \$25, quarterly, including Cumulation.

PUBLISHING

- History of the Book.** 2d English ed. Svend Dahl. Metuchen, N. J., Scarecrow Press, 1968. v, 299p. \$7.
- Trends in American Publishing,** Papers Presented at an Institute Conducted by the University of Illinois Graduate School of Library Science, November 5-8, 1967. Kathryn Luther Henderson, ed. Champaign, Ill., Univ. of Ill. Grad. School of Libr. Sci., 1968. x, 105p. \$4. (Allerton Park Institute no. 14) (Available from Illini Union Bookstore).

LETTERS

Yes for Sass

Samuel Sass is again to be congratulated on a clear, forthright piece of prose. I am referring to his "Critical Look at the Recommendations of SLA's Special Committee on Membership Requirements," which appeared in the November issue of *Special Libraries*.

It's too bad that his "Critical Look" didn't follow the Committee's recommendations, instead of preceding it, in that same issue, for it would then have been clearer that the present committee is making the same sad mistake (see requirements (b), (c), and even (e)) that its predecessors did. The endless committees that have been appointed to consider standards apparently *refuse* to recognize the necessity of insisting on a library degree as a *sine qua non* for admission to full membership in SLA.

What those of us who believe in rational standards will have to do is speak up at Convention and make other members see that calling someone a librarian who isn't one is as meaningless as calling the snake oil salesman at the circus "Professor." Perhaps we can even talk the next President of SLA into appointing a committee that consists exclusively of graduates of library schools. It is obvious that only by so doing can we be sure that the recommendations won't provide loopholes for those who, like some of the former committee members, acquired the title of Librarian without earning it.

I've been saying this for many years: hope springs eternal, apparently.

(Professor) Rose Z. Sellers
Associate Librarian
Brooklyn College

Electric Barnacle Scrapers

After reading the provocative and inspiring "Critical Look at the Recommendation of SLA's Special Committee on Membership Requirements" by Samuel Sass (*Special Libraries*, Nov 1968, p.734), I feel compelled to relate the following true life story for your edification and guidance.

Many years ago I was instrumental in establishing the American Society for Barnacle Scrapers (ASBS). This was to be an exclusive group of professional personnel engaged in the science of scraping barnacles and to insure that we did retain an exclusive organization,

we included in our membership requirement that a BS in Barnacle Scraping was the "very Minimum" requirement. We even required that the BS in BS had to be obtained from an accredited Barnacle Scraping school. Oh, occasionally we would run into a genius with a third grade education who we felt would not tarnish our exclusive organization. We would process these rare souls through a special Admissions Committee and would accept them into our fold, but, by and large, we kept the rascals out.

Everything went along just fine until the late 1950's. Suddenly we found that our field was being invaded by some young upstarts. They had a wide variety of strange new ideas—imagine using an electric scraper rather than the traditional hand scraper—or who ever heard of using ultrasonics to dissolve barnacles—or even using a computer to determine barnacle density? Why, the very structure of ASBS was being threatened.

Soon these upstarts began clamoring for admission into the organization so that they could participate with their colleagues on a professional level. They mounted a campaign that seemed to make sense to some members. We could see that some of the old-timers were beginning to weaken and were even considering changing the membership requirements to allow these parvenues without a BS in Barnacle Scraping to join old ASBS.

But we were not to be underestimated. We fought these membership changes with vigor. We wrote letters with eloquence proclaiming our opposition. We suggested for example that the lowering of requirements might be less than honest at the very least, but for sure would be hypocritical. We created a division in the ranks, the white hatters and the black hatters. We really fought hard, and in the end we won; the requirements were not changed.

For the past several years, things have been very quiet now that we are pure again. Oh sure, we lost a number of members, and our dues have gone up again, but it is so peaceful and quiet not having to listen to all of this gab about computers, ultrasonics, and electric machines. Why we can take our little hand scrapers and just scrape until our hearts are content. We do find, however, that we are not as much in demand as we used to be. Seems now everybody is looking and listening to the people in ASEBS (American Society of Elec-

tric Barnacle Scrapers). This is the new organization that was started by our rejected rascals after our great victory.

I thought that you should be aware of the similarity of the two struggles and how we overcame. My final word to you is: Don't let the rascals in.

Irving Barnaclescraper

P.S. I won't put my home address on here because I no longer have a home. Because the barnacles no longer come to us, we have to look for the barnacles. Things have not been too good lately.

Irv

EDITOR'S NOTE. Dear Irv: We were glad to note from your envelope that you still have a ZIP Code. 90744, Right?

Address Change—Upstate N. Y.

When our Chapter publication, *A Directory of Special Libraries and Research Resources in New York State* was last presented in *Special Libraries*, I was employed at the Pfaudler Company and all orders were sent to me at their address. For the past two years I have been at the University of Rochester.

Therefore, please place a notice in an early issue of *Special Libraries* indicating that future orders for the directory should be sent to my current address as follows:

Thomas W. Johnston, Business Manager
Upstate N.Y. Chapter, SLA
Rush Rhees Library
University of Rochester
Rochester, New York 14627

Thomas W. Johnston

Tourism, Anyone?

Three identical Post-Conference Tours to Western Canada are scheduled via Canadian National Railways. The thirteen-day tours will leave Montreal on June 6, 7, and 8 (Friday, Saturday, and Sunday). It is difficult to find a more complete visit through Western Canada: Winnipeg, Edmonton, Calgary, Banff, Lake Louise, Jasper, Vancouver and Victoria. Itineraries and reservation forms will be mailed to all SLA members.

Bienvenu à Montréal / Welcome to Montreal

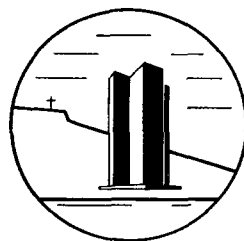
INFORMATION ACROSS BORDERS is the theme for the SLA's 60th Annual Conference in Montreal, June 1-5, 1969, at The Queen Elizabeth Hotel. In our city of two languages and two cultures we are accustomed to crossing borders; so our theme should reflect the spirit of our city as well as that of our Association. As we come together in meetings, in seminars and discussions, and in friendly and informal gatherings, surely more than geographical borders will be crossed.

Two general sessions in addition to the Opening Session are planned. A survey of information resources in Canada is to be presented by a panel of well known experts in various fields. The Second General Session will be an illustrated address on Northern Research. The Arctic is of increasing importance to every discipline, and a discussion of work in progress should prove stimulating and informative. Thursday will be the day for Divisions. Many of the Divisions are planning trips to Ottawa, to Quebec, to Varennes, and in Montreal itself.

The Annual Banquet is planned for Tuesday, June 3. All arrangements have not yet been completed, but we are planning entertainment with a French-Canadian flavour to delight all members of our international Association. For the Scholarship Event, everyone will have an opportunity to visit Montreal's great fair, *Terre des Hommes/Man and His World*, the successor to EXPO '67. You can ride on the Minirail for a bird's-eye view of the exhibition, visit as many pavilions as you please, and end up at a wine-and-cheese party at the restaurant, *Hélène de Champlain*. Then you may return by bus to your hotel or you can whoop it up at *La Ronde*, where the fun goes on till 2:30 a.m. Those of you who missed EXPO '67 will see the great show; and those of you who came before will enjoy the new sights and sounds of our greatest tourist attraction.

Our Conference symbol shows that Montreal is a mixture of the old and the new, the wooden cross and the modern skyscraper. From the top of our mountain, Mont Réal, to the great St. Lawrence River, the city is ready to welcome you in English and in French with the two-fold hospitality for which our city is famous. Bienvenu/Welcome.

Miriam H. Tees
Montreal Conference Chairman



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JANUARY 1969



COMING EVENTS 1969/1974

1969

Jan 16–18. **SLA**, Advisory Council and Board of Directors. Sheraton Hotel & Motor Inn, Rochester, N. Y.

Jan 24–26. **Association of American Library Schools** . . . at the University of Maryland. *Theme*: Changing Patterns in Library Education: The Maryland Experience as a Case in Point. For information: Sarah Thomas, School of Library and Information Services, University of Maryland, College Park 20742.

Jan 26–31. **ALA**, Midwinter Meeting. Shoreham Hotel, Washington, D. C.

Jan 28–31. **IEEE**, International Symposium on Information Theory. Ellenville, N. Y. Contact: J. Wolfe, Dept. of Electrical Engineering, Polytechnic Institute of Brooklyn.

Jan 30–Feb 2. **Music Library Association**, Annual Meeting. University of New Mexico, Albuquerque. Program Chairman: Eulan V. Banks, Music Library, University of Texas, Austin 78712.

Feb 24–25. "Where Is Technology Leading Communications?" sponsored by **IEEE** Engineering Writing and Speech Group at the Washington Hilton Hotel. For details: Charles A. Meyer, Commercial Engineering Services, RCA, Harrison, N. J. 07029.

Mar 18–20. **National Federation of Science Abstracting and Indexing Services** . . . annual conference in Raleigh, N. C. For information: Stella Keenan, NFSAIS, 2102 Arch St., Philadelphia 19103.

Apr 7–10. **Catholic Library Association**, 48th Convention. Roosevelt Hotel, New Orleans. Contact: M. Richard Wilt, CLA, 461 W. Lancaster Ave., Haverford, Penna.

Apr 20–26. **National Library Week**

May 5–9. **Third International Congress of Medical Librarianship** . . . in Amsterdam

at the RAI International Congress Center. For registration forms: Secretary General, 119 Herengracht, Amsterdam.

May 6–8. **National Microfilm Association**. Sheraton-Boston Hotel, Boston. For information write: NMA, P.O. Box 386, Annapolis, Md. 21401.

May 14–16. **1969 SJCC** in Boston at the War Memorial Auditorium. Spring Joint Computer Conference chairman: T. H. Bonn, P.O. Box 567, Lexington, Mass. 02173.

May 19–Jun 13. Institute on the Impact of the Behavioral and Social Sciences on Legal Research. For law librarians . . . at the University of Wisconsin–Milwaukee. Director of the institute is Prof. Roy M. Mersky, Tarlton Law Library, University of Texas School of Law, Austin.

Jun 1–5. **SLA**, 60th Annual Conference. The Queen Elizabeth Hotel, Montreal. *Theme*: Information Across Borders. Conference chairman: Miriam Tees, The Royal Bank of Canada, P.O. Box 6001, Montreal 101, P. Q.

Jun 7–13. **Canadian Library Association (CLA/ACB)**, 24th Annual Conference. Arts and Culture Centre, St. John's, Newfoundland. For information: CLA, 63 Sparks St., Ottawa 4, Canada.

Jun 17–20. Fourteenth Seminar on the Acquisition of Latin American Library Materials . . . in Puerto Rico. For program information: James Andrews, Argonne National Laboratory, 9700 S. Cass Ave., Argonne, Illinois 60439.

Jun 22–28. **ALA**. Atlantic City. Conference manager: C. J. Hoy, ALA, 50 E. Huron St., Chicago 60611.

Jun 29–Jul 3. **American Association of Law Libraries.** Sheraton-Lincoln Hotel, Houston.

Jul 20–Aug 1. **Third Annual Library Administrators Development Program . . .** at the University of Maryland. Address inquiries to: Library Administrators Development Program, School of Library and Information Services, University of Maryland, College Park 20742.

Aug 6–8. **World Conference on Records and Genealogical Convention & Seminar in Salt Lake City.** Write: The Genealogical Society, 79 S. State St., Salt Lake City 84111.

Aug 9–26. **PL/I Library Programming Seminar . . .** at the University of Illinois, Urbana. For information write: Extension in Library Science, Illini Hall, Champaign, Illinois 61820.

Aug 25–30. **IFLA (International Federation of Library Associations).** Danmarks Biblioteksskole, 6 Birketinget, Copenhagen, Denmark.

Sep 21–24. **Aslib, 43rd Annual Conference.** At the University of Warwick at Coventry, England.

Sep ——— **SLA, Board of Directors.** N. Y.

Oct 1–5. **American Society for Information Science, 32nd Annual Meeting.** San Francisco Hilton. Convention chairman: Charles P. Bourne, Programming Services, Inc., 999 Commercial St., Palo Alto, Calif. 94303.

Oct 26–30. **Medical Library Association, Annual Meeting.** Brown Hotel, Louisville, Kentucky. Program chairman: William K. Beatty, Northwestern University Medical Library, 303 E. Chicago Ave., Chicago 60611.

Oct 27–31. **Business Equipment Manufacturers Association (BEMA), 11th Annual Business Equipment Exposition . . .** at the New York Coliseum. Contact: BEMA, 235 E. 42nd St., N. Y. 10017.

1970

Jan 19–24. **ALA, Midwinter Meeting.** Chicago.

Jan 29–31. **SLA, Board of Directors and Advisory Council.** Regency Hyatt House, Atlanta, Georgia.

Mar 30–Apr 2. **Catholic Library Association.** Statler Hotel, Boston.

May 17–22. **Medical Library Association.** Roosevelt Hotel, New Orleans, Louisiana.

Jun 7–11. **SLA, 61st Annual Conference.** Sheraton-Cadillac Hotel, Detroit. *Theme:* The Changing Face of Special Libraries. Conference chairman: Mrs. Gloria M. Evans, Parke, Davis & Company, Production and Engineering Library, Detroit, Mich. 48232.

Jun 28–Jul 2. **American Association of Law Libraries.** Shoreham Hotel, Washington, D. C.

Jun 28–Jul 4. **ALA, Detroit.**

Sep ——— **SLA, Board of Directors.** New York.

Sep ——— **FID (International Federation for Documentation).** Buenos Aires.

Oct 4–9. **American Society for Information Science, 33rd Annual Meeting.** Bellevue Stratford Hotel, Philadelphia. Convention chairman, Kenneth H. Zabriskie, Jr., Biosciences Information Services, 2100 Arch St., Philadelphia.

1971

Jan ——— **SLA, Board of Directors and Advisory Council.**

Jan 18–23. **ALA, Midwinter Meeting.** Los Angeles, Calif.

Apr 12–13. **Catholic Library Association.** Netherlands Hotel, Cincinnati, Ohio.

May 30–Jun 3. Medical Library Association. Waldorf-Astoria Hotel, New York, N. Y.

Jun 6–10. SLA, 62nd Annual Conference. San Francisco Hilton Hotel, San Francisco.

Jun 20–26. ALA, Dallas.

Jun 27–Jul 1. American Association of Law Libraries. The Diplomat, Hollywood-by-the-Sea, Florida.

1972

Apr 3–6. Catholic Library Association. Pick-Congress Hotel, Chicago.

Jun 4–8. SLA, 63rd Annual Conference. Statler-Hilton Hotel, Boston.

Jun 11–15. Medical Library Association. Del Coronado Hotel, San Diego, Calif.

Jul 2–6. American Association of Law Libraries. Drake Hotel, Chicago.

1973

Apr 23–26. Catholic Library Association. Denver.

Jun 3–7. SLA, 64th Annual Conference. Statler-Hilton Hotel, Dallas.

Jun 18–22. Medical Library Association. Shoreham Hotel, Washington, D. C.

1974

Jun 2–6. Medical Library Association. San Antonio, Texas.

As a service to meeting planners, Special Libraries will periodically publish a multiple year calendar of future meetings of the major organizations in the library and information profession.

HAVE YOU HEARD ?

Title Changes for 1969

In the U.S. *Documentation Abstracts* changes to *Information Science Abstracts*. In England *Library Science Abstracts* will be replaced by a new service, *Library and Information Science Abstracts* (LISA); Aslib will supply abstracts of the literature of documentation while The Library Association continues to abstract the library science literature.

North Carolina Curriculum

The Department of Computer and Information Science at the University of North Carolina at Chapel Hill has issued its announcement of courses for 1969/1970. Write to the department at: Phillips Hall Annex, UNC, Chapel Hill, North Carolina 27514.

NMA Speakers Bureau

The National Microfilm Association has formed a Speakers Bureau to further the dissemination of microform knowledge. Speakers are available to address interested groups. Contact: Miss Loriel Joseph, Geyer Oswald, Inc., 555 Madison Ave., N. Y. 10022.

Medical Library Association Prizes 1969

The Otto H. Hafner Award of \$200 for an article on the history of medicine published in English during 1968. Nominations to be submitted by Mar 1, 1969 to: Dr. Peter Olch, National Library of Medicine, 8600 Rockville Pike, Bethesda, Md. 20014.

The Ida and George Eliot Prize Essay Award is given for that essay which has done most to further medical librarianship, and which was published during the past year. Nominations to: Dagmar Michalova, N. Y. State Dept. of Health, Research Library, New Scotland Ave., Albany, N. Y. 12201.

The Murray Gottlieb Prize of \$100 is offered for the best essay submitted on some

phase of American medical history. Send essays to: Mrs. Bernice M. Hetzner, College of Medicine Library, University of Nebraska, 42nd and Dewey Ave., Omaha 68105.

Texas Educates Specials

Texas Woman's University, School of Library Science will offer two courses in the 1969 Spring Semester: *Special Library Administration* and *Automation in the Library*. In the Summer Session *Data Processing Systems in Libraries* will be offered.

North Texas State University, Department of Library Service is currently offering three courses of special interest: *Special Libraries, Organization of Non-Book Materials*, and *Seminar on Current Problems in Library Service: Automation of the Library*.

University of Florida Assistantships

The University of Florida Libraries offers a number of graduate assistantships for the 1969/1970 academic year, primarily for practicing professional librarians interested in study leading to a master's or doctor's degree in a subject field other than library science. Stipends of \$2,400 are awarded for a nine-month work-study period; 15 hours of library work are required each week. Application to be submitted by Feb 15, 1969 may be obtained from: G. A. Harrer, Director of Libraries, University of Florida, Gainesville 32601.

Bio-Medical Librarianship

The University of Illinois Graduate School of Library Science offers a unique program leading to the Master of Science degree with specialization in bio-medical librarianship. A grant from the U.S. Public Health Service allows the school to offer ten traineeships annually. Fulltime study begins in mid-June and continues for 14 months. A stipend of \$2,800 and an allowance of \$584 for each dependent are paid. For additional information and application forms, write: Prof. Frances B. Jenkins, Graduate School of Library Science, University of Illinois, Urbana 61801.

ASIS Officers

The 1969 officers of the American Society for Information Science are: president, Joseph Becker, EDUCOM; president-elect, Charles P. Bourne, Programming Services, Menlo Park; secretary, Dr. Ann F. Painter, Graduate Library School, Indiana University; and councillors, Dr. Susan Artandi, Rutgers University Graduate School of Library Services, and John Sherrod, National Agricultural Library. Robert S. Taylor, Hampshire College of Amherst, Mass., is the past president. Phyllis B. Baxendale, IBM Research Laboratories, San Jose, will be cabinet councillor; and Dr. Gerard O. Platau, Chemical Abstracts Service continues as assembly councillor.

Medical Librarianship

The Biomedical Library, Center for the Health Sciences, University of California, Los Angeles is offering four traineeships in medical librarianship for a year beginning Sep 1, 1969. Application forms to be submitted by Apr 1 can be obtained from Louise Darling, librarian.

National Diet Library Anniversary

The twentieth anniversary of the establishment of Japan's National Diet Library was observed on Nov 21, 1968. Dedication ceremonies on that day marked completion of the library's construction which had been begun in 1954.

Verner W. Clapp was awarded an Order of the Sacred Treasure by the Government of Japan. Presentation of the medal and scroll was made by the National Diet Librarian, Yoshikatsu Kono.

California Sanctions

The California Library Association has announced that sanctions will be applied against the California State Colleges unless full faculty status is granted to librarians by Jul 1, 1969. It was also noted that the salary increases for 1968/1969 further increased the inequalities of the librarians' salaries.

CHAPTERS & DIVISIONS

Greater St. Louis heard the president of the Medical Library Association, Mrs. Jacqueline Felter, at the Chapter's November meeting.

Heart of America and Greater St. Louis will have a joint meeting in St. Louis on Apr 19.

Illinois Chapter meets with the Chicago Library Club on Jan 23 to hear Dr. Lowell Martin review the progress of his study of the Chicago Public Library.

The Chicago Association of Commerce and Industry and the **Illinois Chapter** are jointly preparing a *1969 Research and Information Sources Directory for Metropolitan Chicago*.

New Jersey will stage "N. J. Special Libraries Showcase" on Feb 11 for high school administrators, librarians and guidance staff from four countries in northern New Jersey. Twelve exhibits are planned; and the visitors will be the guests of the Chapter at cocktails and dinner. Apr 21 has been set for "Special Librarian for a Day" for New Jersey's high school students.

New York Chapter's annual Christmas party was held at The Tavern on the Green in Central Park.

Philadelphia met at the American Society for Testing and Materials on Jan 9. The Chapter is one of the co-sponsors of the 6th Annual National Information Retrieval Colloquium on May 8-9 at the Warwick Hotel, Philadelphia.

The youngest of the Chapters, **Princeton-Trenton**, has named its bulletin: *First Impression*. On Jan 14 the Chapter visits the New Jersey Library for the Blind and Handicapped in Trenton; on Mar 27, the Manuscript Collection of Princeton's Firestone Library; and on Apr 29, will see a demonstration of the automated documents system at the Forrester Research Center Library.

Rio Grande Chapter has appointed an Ad Hoc Committee to Serve New Mexico Businesses as a two-year Chapter project.

Titles and sub-titles of the meetings of the **Texas Chapter** during 1968/1969 reflect the theme of the Montreal Conference:

Oct 5, 1968 at Austin. Information Across Borders—Communication between Disciplines.

Dec 14, 1968 at Houston. Information Across Borders—Communication across Organizational Borders.

Feb 15 at San Antonio, Communication across Geographical Borders.

Apr 12 at Dallas, Communication among Media.

Washington, D. C. Chapter and the District of Columbia Library Association will jointly sponsor a workshop on Mar 15. In April the Chapter tours the new Housing and Urban Development Library; and the Chapter's annual banquet is scheduled for May 8.

Metals/Materials Division's Fall Meeting in Dearborn, Michigan (Oct 14-15) had 68 participants from the Division and from most of the nine midwestern Chapters. Twelve papers ranged from planning a new library or moving an existing library, and personnel problems through time and motion studies, and management investment in the library.

Picturescope, the quarterly newsletter of the **Picture Division** (vol. 16, no.3, 1968), presents one of the Los Angeles Conference papers: "The Unknown Daguerreotype of the California Gold Rush" by Robert A. Weinstein, vice president of Ward Ritchie Press, Los Angeles.

The same issue of *Picturescope* reports a discussion at the Picture Division's business meeting that would lead to a change from the Picture Division's present affiliation with SLA to an unaffiliated association to include non-librarians in the picture field. Also reported was the observation that more than half of the members of the Picture Group of the Washington Chapter were picture researchers—not librarians—and therefore not members of SLA.

MEMBERS IN THE NEWS

On Oct 17, 1968 Dr. Karl A. Baer presented a paper, "Better Information for Better Housing," at the International Union of Building Centers meeting in Washington, D. C.

Harold Bloomquist . . . appointed librarian of Harvard's Francis A. Countway Library of Medicine, succeeding the late **Ralph T. Esterquist**.

Jane E. Braucher of the Army library, Washington, D. C. was one of thirty-five participants in the 1968 Summer Institute for Law Librarians at the University of California, Berkeley.

Dr. Robert T. Divett, librarian of the University of New Mexico School of Medicine . . . appointed visiting associate professor of librarianship at the University of Washington, Seattle.

Marc Gittelsohn . . . from agricultural sciences libraries, University of California, Berkeley to head the new Moffitt Undergraduate Library at Berkeley.

Dr. Charles F. Gosnell, director of libraries, New York University, is president-elect of the New York Library Association.

Mrs. Jane D. Groves, information director for the Gardner Advertising Company, St. Louis is one of seven newly elected vice presidents in the agency's St. Louis office.

Doralyn J. Hickey . . . from assistant professor to associate professor of library science at the University of North Carolina at Chapel Hill; she will continue as managing editor of *Library Resources & Technical Services*. **Frances H. Hall** . . . appointed assistant professor at UNC, Chapel Hill . . . from documents librarian for UNC at Greensboro.

Wilma F. Kujawski, librarian of Distillation Products Industries (a Division of Eastman Kodak Company), Rochester, N. Y. is featured in current Kodak ads as a "Great Little

Saleslady." Volume VII of Miss Kujawski's *Annotated Bibliography of Vitamin E* covers the literature of 1965-1967.

Elizabeth Walkey, past president of the Southern California Chapter, has been elected to the Advisory Board of the School of Library Science, USC.

John A. Wolter . . . to assistant chief of the Geography and Map Division, Library of Congress . . . a past secretary-treasurer of SLA's Geography and Map Division.

Mariana Reith, head of the Business Department, Los Angeles Public Library, is teaching Reference Sources and Services at U.S.C.; **Edward Hess**, acting librarian, San Fernando Valley State College . . . teaching Social Science Bibliography at the University of Southern California.

Three SLA members have been elected as officers of a new trade group, Information Industry Association (IIA), that will be concerned with promoting the interests of commercial firms that create, supply or distribute information services. **Boris R. Anzlowar**, Pharmaco-Medical Documentation, Chatham, N. J. was elected vice president. **Eugene Garfield**, Institute for Scientific Information, and **Eugene Power**, University Microfilms, were elected directors. **William T. Knox**, McGraw-Hill, was named president of IIA.

The Western Interstate Commission for Higher Education (WICHE) recently began a nine-month planning project, "Cooperative Educational Development for Library Personnel." The project coordinator is **Mrs. Barbara J. Conroy** who has been director of the Staff Development Project, Central Colorado Public Library System.

James B. Dodd will head Georgia Tech's Technical Information Service which will be available to off-campus users: industrial, research and commercial. The announcement was made by **Mrs. Dorothy Crosland**, director of libraries. Dodd is the former graduate librarian at Georgia Institute of Technology.

William Bollman III, executive secretary of the American Merchant Marine Library Association since 1947 . . . on November 7 at his home in West Hempstead, Long Island. An SLA member since 1958. Under Mr. Bollman's direction the work of the "Public Library of the High Seas" was expanded, and its base of support was broadened. The eight port offices (Boston, San Francisco, New Orleans, San Pedro, New York, Sault Ste. Marie, Norfolk, and Seattle) were welded into an efficient operation to provide library service to merchant vessels, Coast Guard vessels and lighthouses.

John H. Miller, retired picture editor of *The Philadelphia Inquirer's Today Magazine* . . . on November 17 in Collingswood, N. J. Mr. Miller joined SLA in 1925 when he was photo librarian at International Fea-

tures Syndicate, N. Y. He was one of the first members of the Newspaper Division, and was chairman of the Division in 1927.

Esther M. Schlundt . . . on November 15 in Traverse City, Mich. A member of the *Purdue University Libraries* staff from 1929 until her retirement in 1963 because of ill health. An SLA member since 1945, Miss Schlundt was president of the Indiana Chapter in 1951/1952. Professor Schlundt was also a member of Phi Beta Kappa and Beta Phi Mu.*

* The Indiana Library Association has established the Esther M. Schlundt Memorial Loan Fund to aid library school students. Contributions should be sent to Mrs. Jean Walker, Gary Public Library, 220 West 5th Ave., Gary, Indiana 46402; checks to be payable to the ILA Scholarship and Loan Fund.

SLA Authors

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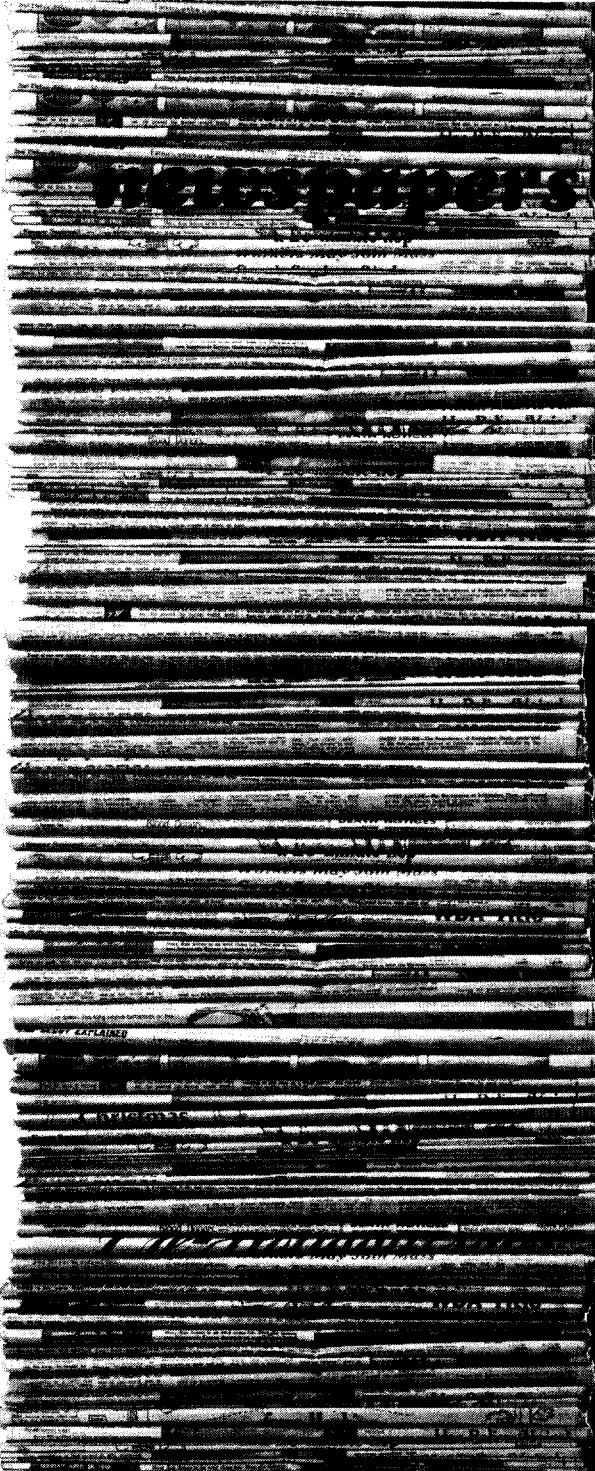
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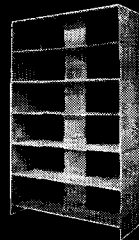
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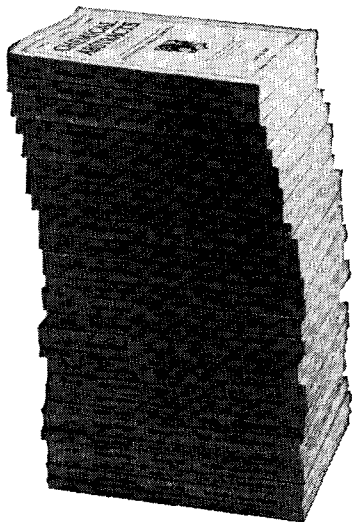
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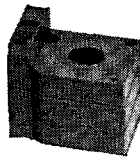
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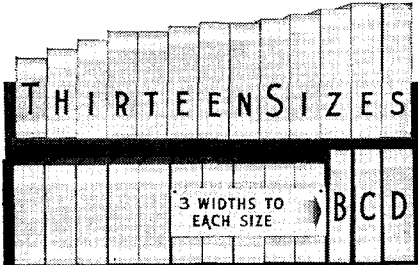


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Boston, Massachusetts October 1966

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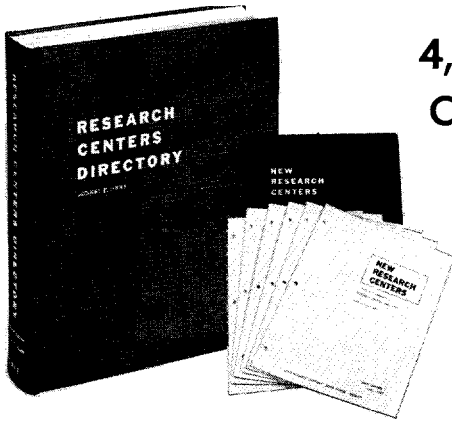
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